ABOUT TIME

THE UNAUTHORIZED GUIDE TO
DOCTOR WHO

1975-1979

SEASONS 12 TO 17

Essays

LAWRENCE MILES & TAT WOOD

…the unauthorized & ambitiously definitive guide to Who…

The alien warlord who's got six copies of the Mona Lisa in his basement, and still isn't satisfied. The hideous underwater embryo-creatures who insist on trying to take over the world from Loch Ness. The giant rat that patrols the sewers of Victorian London, and somehow seemed a lot more worrying at the time.

These aren't just the greatest, strangest or most Doctor-Who-like moments in *Doctor Who*.These are the moments that make up an era, part of a universe of things we'd never seen before and never expected. And this is the all-purpose handbook to that universe, both on- and off-screen. Contained within these volumes is everything you could reasonably want to know about the original series of *Doctor Who,* from the nuances of Cyberman culture to the science of the Eye of Harmony, from the programme's most triumphant successes to its most bizarre logical flaws, from its roots in the BBC of the 1960s to its legacy in the here and now.

But above all else, this is a history. A history of the *Doctor Who* continuum; a history of the way the series changed across the span of a generation; and a history of those who grew up with it, of what it meant to the children of the '60s, 70s and '80s.

This is, in a very real sens*e, About Time.*

Written by **Lawrence Miles (***Faction Paradox)* and **Tat Wood (***Dreamwatch, SFX), About Time* Volume IV dissects *Doctor Who* Seasons 12 to 17 - the bulk of I the Tom Baker era. Among other things, this book strives to answer such vital-' important questions as "Where (and When) is Gallifrey?","Why Couldn't the BBC Just Have Spent More Money?""Why Does Earth Keep Getting Invaded?" and *"War of the Daleks:* Should Anyone Believe a Word of It?"

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robot 12.1

Does This Universe Have an Ethical Standard?

Ethics and *Doctor Who:* big subject. Not least because we're dealing with over 150 separate "morality tales" spread over a twenty-six year period in which British society had to re-think most of its ideas about what was and wasn't acceptable anyway.

There *isn't* a solid, definite morality behind the Doctor's actions, (1) because such a thing would be impossible to maintain over so many seasons, (2) because of the BBC's eagerness to be non-denominational (and absolutely *not* allow the Doctor's companions to have "meaningful" conversations about God, the way the series'very first writer intended), and (3) because the deliberate absence of a proper "back-story" in the early episodes guaranteed a certain moral ambivalence on the Doctor's part.

Even from story to story, sometimes from episode to episode, his morals seem to waver. It *is* possible to squeeze all his actions into a single ethical code, with only one or two glitches, but that's not what concerns us here. In How Does "Evil" Work? (it's under 8.2,"The Mind of Evil", ptly enough), we dwelt on little things like the existence of the soul and What It Means to Be Bad in This Universe. In How "Good" is the Doctor? (under 25.1, "Remembrance of the Daleks"), we'll pause to think about the way the changing shape of the programme alters the nature of the Doctor's character. Here, we're going to talk about ethics: that is, how you're supposed to *behave* towards people, and whether *Doctor Who* is giving us a consistent message. Morality - the grounds for religion, beliefs, etcetera - can keep.

So. *Is* there a universal, ethical standard in this universe?

Right, crash-course on ethics in the world as we know it. Apart from

“I’m right, you’re wrong, die infidel”, there are two standard positions on this, the Categorical Imperative and Utilitarianism. To summarise them in the kind of bonehead English that most scholars would find objectionable: the Categorical Imperative basically means “Do As You Would Be Done By/ although the philosopher Emmanuel Kant spent a long time working on this to get it exactly right. Utilitarianism means “The Greatest Good for the Greatest Number”, ut even if we can agree on what “good” is, we still need a measure of how”great”a good is; n “ethical calculus”.

Now, Utilitarianism is clearly at the heart of the Time Lords’actions. In “The Deadly Assassin” (14.3) we find out that their grand observation hall is called the Panopticon, a name which comes from a design of prison suggested by the eighteenth century philosopher and “father” of Utilitarianism, Jeremy Bentham. Bentham’s Panopticon was, and this will be significant later, based on the idea that it’s impossible to sin / try to escape / take crack / do anything else that’s forbidden if someone can see you at all times.“Panopticon”… the name suggests “all-seeing/ Bentham envisaged a great cylindrical building, with every cell visible from a central point, and there are some prisons built on this principle in Philadelphia and Illinois.

However, if you try taking Utilitarianism to extremes… well, there’s a scene in Dostoievski’s novel *The Brothers Karamazov* - and this will come up again in “Genesis of the Daleks” (12.4) - to the effect that a Utopia based on the deliberate torture of one individual might be worth achieving. Logically, the Greatest Good for the Greatest Number means that the perpetual sacrifice of one is acceptable, if it means the perpetual well-being of everyone else. For the Time Lords this isn’t just theoretical, and many of their more questionable decisions are made with this logic in mind. Even apart from their later activities, they only achieved mastery of time when Omega was “sacrificed” to the black hole, and thereafter kept in pain for millennia (10.1,“The Three Doctors”). For our purposes it’s a clue that Robert Holmes, who first brought the word “Panopticon” to the series, was aware of what he was suggesting in “Carnival of Monsters” (10.2) when he hinted that the Time Lords supervise the dignity and morality of sentient beings.

You can see the paradox. The Time Lords banned the Miniscope because watching inferior beings is demeaning, but what do *they* do all day? In 70s *Doctor Who* surveillance is an Orwellian nightmare, and being observed by "outside" beings as we go about our lives is the second scariest thing that can happen to you, after possession.

But the Doctor relies far less on any"calculus/on any rational system of how much sacrifice equals how much good, than he relies on sheer instinct. He rarely suggests that it's"good"for one life to be sacrificed in the name of billions, even if those who suicidally save the day are presented as allround heroes. When he *does* go along with the idea that one life is worth less than millions, it's usually his own life that's being offered up. As a solo Time Lord he has no way of knowing the consequences of his actions, and mainly relies on hope. When he cites the "Law" of the Time Lords in "The Hand of Fear" (14.2) or presents a seemingly-spurious argument for stopping the Virus of the Nucleus in "The Invisible Enemy" (15.2), it sounds as if he's just using fragments of a code of conduct that he left behind when he left Gallifrey.

The other "standard" model, the Categorical Imperative, offers a bit more scope. "Do As You Would Be Done By"remember. While Kant wanted to provide an ethical standard based on respect for the souls of any people one might encounter (and this applies to disembodied intelligences and robots as well as people in the more conventional sense), here we have no need for divine agencies, Karma, or the threat of eternal damnation. Even though we know the Time Lords are watching, and even though they presumably know how things will turn out, we're supposed to act in a certain way because it's "right" Not because of a higher power with a big stick. Respect for others is to be learned, or acquired, autonomously.

So now we come to Kettlewell's robot. As we see in "Robot" K1 begins to develop an idea of "good" based not on what Jellicoe and Winters tell it, but on what capacity any given human has to understand its distressing neural imbalances. Sarah and Kettlewell are "good" because they empathise, whether they actually *do* anything or not. They want to help when the robot's in pain. The robot evaluates its own actions on whether people will suffer and how much "badness" will be prevented. There are other

considerations, like retaliating when shot at, but these all develop from the basic experience of pain. Whether what *it* feels is in any way similar to what we feel is immaterial. The robot suffers hurtful effects from inner conflict, maps these onto other people and assumes their actions to be similarly motivated. It has, as child psychologists call it, a "theory of mind".

All *Doctor Who* monsters have this to some extent, even vegetables (the Krynoid, for instance). Only absolute reflex-driven beasts like Drashigs seem to lack it, and even then it's hard to tell. Aliens planning to take over the world must assume human thoughts to be analogous to their own for their fiendish plans to work. Disembodied forces, such as the Great Intelligence, can suffer even without a body in which to experience pain.

Anything capable of empathy is expected to understand that the same experience of "bad" applies to everyone else. If they *do* understand this, but cause suffering anyway, then they're in the wrong. Consider "The Savages" (3.9), in which Steven starts a revolution by making the guards understand what it feels like to be on the receiving end of a light-gun.

And when we look carefully at the few times that the matter's been explicitly talked about in the series rather than assumed, we find empathy right at the top of the ethical agenda. "The Two Doctors" (22.4) puts the motives of those who inflict pain under the spotlight. Androgums barely exist as moral agents; they're pure id, and live for self-indulgence. Dastari and Chessene are supposed to know better and are therefore morally culpable (whereas Shockeye isn't, and the Doctor butchers him like an animal… mind you, his *is* the Sixth Doctor we're talking about).

Think how often "emotional capacity" is used as the benchmark. The food being discussed by the Androgums is often produced by (arguably) cruel means, and in fact many of the examples given in the story are those used in the Voigt-Kampf Test of empathy in Philip K. Dick's *Do Androids Dream of Electric Sheep?* - filmed, sort of, as *Blade Runner* - in which the inability to flinch at the thought of lobsters being boiled alive is proof of not being human. Beings who lack the capacity to empathise have to be seen as less-than-complete moral agents. The Daleks are like a virus, but Davros (and

humans) have the choice, and are therefore worse. In “The Robots of Death” (14.5), the robots - who are apparently incapable of empathy, except for the peculiar D84 - are merely used as weapons. (In English law, until 1811, a bull or dog that killed someone could be tried and hanged as a “deodand” But the principle of arresting all non-human killers was abandoned when steamrollers started appearing in court.)

A seemingly unlikely consequence of this is that the motivation of any act is a better indication of its being “good” than the consequences, however benign those consequences turn out to be in the long run. You can do the “right” thing even if it’s a nasty thing to do to someone.

Our test-case, the K1 robot, is supposedly incapable of harming anyone but also seems to be programmed for self-preservation. This makes sense, for an experimental prototype which must have cost the taxpayers millions. It also harks back to the most famous rules for robots, Asimov’s Three Laws of Robotics, which demand that robots look after themselves *provided* it doesn’t cause harm to humans.

However, the existence of empathy means that self-preservation can come lower down the list of priorities than some specific objective. It means that the robot can sacrifice itself in the name of a greater good, even if that greater good doesn’t *directly* lead to human lives being saved. It can jeopardise itself in the name of an abstract ideal. The robot can only kill if its brain is altered - we might reasonable suppose that beyond its “personality” it has some sort of fail-safe which Kettlewell can remove when the SRS needs an assassin - but even when it *can* hurt people, the SRS has to convince it that its target is an enemy of all humanity.

And when it tries to blow everyone up with nuclear missiles, it seems to believe that it’s making things better by creating a less troubled world, inhabited by a new race of robots instead of nasty people who give it pain-inducing orders. Empathy allows a being to consider the next generation, which might explain why K1 seems to have its creator’s understanding of sexual roles.

So, granting a robot or a piece of software the ability to take

abstract issues personally may be the means by which it becomes an individual (it worked for BOSS in 10.5,“The Green Death”… sort ofj.But as neither”good”nor”pain”is quantifiable, the only thing stopping an empathic machine from launching a campaign against every perceived antagonist it encounters is exactly the tendency to generalise and judge-by-consequences which leads to Utilitarianism.

Look on the bright side: humans haven’t solved that one yet, either

Why Couldn't They Just Have Spent More Money?

We're always having to comment on cost-cutting measures. You'll notice, as this volume unfolds, that financial constraints force increasingly desperate and ingenious measures on the production team. Of course, there were always problems with both time and budget. In 1964, the series very nearly got cancelled in its first season due to an accounting error involving the TARDIS console. And by the late '80s it was resorting to such desperate "guerrilla TV" tactics that when "Remembrance of the Daleks"(25.1) required the filming of a 1960s street scene, the programme-makers set up the cameras on a suitable street, stuck a fake '60s number-plate on a car that happened to be in the way, then hurriedly filmed the scene and ran away again before the vehicle's owner turned up.

Many apparently odd choices and decisions, especially in the 70s, were purely fiscal. The obvious question for younger or foreign readers is the one in this essay's title, especially now that the 2005 re-make of *Doctor Who* is on its way with a budget rumoured to be in the millions. (Though at the time of going to press, none of the rumours can decide whether it's meant to have a budget of millions per episode, millions per series or millions to pay the new Doctor, Christopher Eccleston.)

Why couldn't they just have spent more money? There are two reasons, both a bit complicated.

As we mentioned in Volume III, *Doctor Who* is often thought of as a children's programme but was actually the result of the Drama department of the BBC attempting to reach as wide an audience as possible. Every single episode came out of the Drama budget, an overall proportion of the BBC licence fee. Into that budget went all the revenue from overseas sales and spin-off merchandise (see Why

Was There So Much Merchandising? under 11.5, “The Monster of Peladon”). In the mid-’70s the BBC was doing very well out of selling prestige series overseas, especially the costume dramas, which the British public lapped up as well. Many popular and long-running programmes began in this period, some of them requiring enormous capital outlay that was defrayed over several years. *(The Onedin Line,* for example, required two reconditioned Victorian sailing ships and location work in mock-ups of Liverpool circa 1860 in every episode… “The Mark of the Rani” is just a set full of cobblestones by comparison.)

The BBC could have decided to delay a new series of hardy perennial *Doctor Who* while setting up these programmes, as it eventually did in 1985, but the popularity of the series with both the public and the BBC hierarchy - who didn’t care what the show did, as long as a large and varied demographic thought that no-one else was doing it better - made this inconceivable.The Corporation could shove it around the schedules to maximise its effect, but the idea of *not* making one series a year would have seemed un-BBC-like. So in any given year the budgetary constraints would have been considerable, although as all BBC dramas were made in-house, the recycling of props and sets was widespread. Especially if the same designer was involved in more than one programme.

However, there was another problem for mid-’70s budgets. Inflation.

The numbers speak for themselves. The inflation rate in 1967 was 2.5%.This is what we’re used to now. That summer, as the full extent of the economic downturn became apparent, the British government was forced to decide whether or not to decouple the value of the pound from the Gold Standard. Once it did, inflation almost doubled. 4.7% in 1968,5.4% the following year. The effects on the *Doctor Who* budget are plain to see. (And if you’ve not noticed, they had to make fewer stories per year, hence baggy eight- or ten-parters cropping up in Season Six.) When Britain got rid of those quaint old shillings and went decimal in 1970 - something which involved much rounding-up of prices, and which in some cases saw unscrupulous traders changing “d” to “p” and tripling some basic costs - things got vastly worse.

1971 saw 9.4% inflation. By the time “Ark in Space” was being made, the figure was 16.6%. Small wonder that the Nerva Beacon turns up in two stories in Season Twelve, that big props like the transmat spheres end up being shunted from Earth to Voga, or that “Revenge of the Cybermen” (12.5) didn’t bother re-building the Cybermen for the 70s as Barry Letts had planned to do just two years earlier.

The following year saw a record: 24.2% inflation. Just ponder this for a moment. Something costing £5 in 1974 cost over £6 in 1975. Something costing £100 (like a Cyberman helmet) was now £125. The Chancellor of the Exchequer, cuddly badgerfaced show-off Dennis Healey, had to confront the Trades Unions - who were the main contributorsto Labour Party funds - and request restraint in demands for wage rises. Imagine how well that went down. In return for removing 2.5 billion pounds from public spending (i.e. sacking teachers, doctors, civil servants and treasury staff, closing departments and generally making everyone still in a job do two people’s work… hence 15.4, “The Sun Makers”), Healey was assured a three-bil-lion pound loan from the International Monetary Fund, which had been set up after the Second World War to bail out Third World nations. Imagine how well *that* went down.

The blow to national pride was not as great as some expected. We were getting used to not being Imperial / important any more, and the odd thing was that we felt as if this were another test of our mettle, like the Blitz. Whenever we felt bad about ourselves we’d just look across the Atlantic and laugh at Watergate, Vietnam and *Star Trek: The Animated Series*. The only nations really doing well - aside from the Arab oil-producing states, whom we didn’t really envy - were Japan and Germany.

The irony wasn’t lost on us.This is, incidentally, why the multi-millionaire technologist in “Image of the Fendahl” (15.3) has a German accent and is said to be on a par with the Japanese when it comes to hi-tech research.”

the sontaran experiment 12.3

Which is Best, Film or Video?

Make no mistake: the first thing a modern audience notices about any TV production, the first thing that makes the viewers *judge* it in any way, is whether it's shot on film or videotape.

We pick up on it before anything else, before we fully assimilate what we're actually looking at and long before we start to ask ourselves what we think of the story. *Doctor Who* wouldn't look like Sex *in the City,* even if - for some hideous and unthinkable reason - the two programmes both featured identical scenes shot from identical angles. We know this instinctively. (Although let's not forget, our grandparents didn't. Those born before the 1940s, who were brought up to regard *any* moving image as slightly exotic, don't necessarily see the difference the way we do. And how do you explain it to them? Other than vague descriptions like "oh, film is glossier" there's no real vocabulary for describing the two very different textures that we see when we're shown the two different media. As you'll know if you've ever found your grandmother watching a daytime soap opera and believing it's the afternoon movie, just because the *content* of the two happens to be roughly similar.)

Productions can stand or fall on their film or video stock. When the BBC made its supposedly "grown-up" fantasy series *Neverwhere,* written by much-hyped comic-book writer and wannabe rock star Neil Gaiman, the decision was made to use video and it doomed the programme before a single frame was shot. By the 1990s, the public -even those sections of the public who didn't consciously know what the difference was - had come to accept that "video" plus "fantasy" equals "cheap children's TV'jand the response to *Neverwhere* was general confusion that it was being shown at nine o'clock in the evening instead of four o'clock in the afternoon. The BBC hasn't tried anything similar since, although it *has* occasionally tried grafting fantasy elements into other, slicker TV formats in an

attempt to make them “cult”

So. The knee-jerk reaction of many people is that film is *automatically* better than videotape. The justification for VT is usually given as being “cost”i.e.it’s cheaper, i.e.it’s not something anyone would use if they could afford not to. But if we’re going to understand the way it was used in the 70s, then we have to look at the wider context of BBC drama at the time.

In the days of black-and-white 405-line TV, about half of the BBC’s drama output was made cheaply on film, using the same film stock as sup posedly big-league productions like *The Avengers.* The low-grade transmission, and the cost-per-minute of the film (as it took a good-enough picture in relatively low lighting), meant that a director could make the arrangements to remount a set at (say) Ealing Studios and make the action-sequences there even if everything else was on tape. In that era, mobile camera-work and fast edits were easier with film than with VT. If you watch “The Aztecs” (1.6) or “Tomb of the Cybermen” (5.1), you can see when the fights are coming because the stock changes. It wasn’t quite as simple as”talky bits on video, fights on film”, ut you get the idea.

Colour wrecked all that, as the film-stock was lot more costly and out-takes ate up a big chunk of the budget. Sets had to be lit differently, and acoustically “damped” (just watch / listen to 7.1, “Spearhead from Space”*Doctor Who’s* only all-film story).The main use for film in this era was location work, or special effects. This is the first problem. Even if only subconsciously, the viewer is always alerted to the difference between this and “routine” studio work. When the effects sequence is grafted onto location filming, this goes almost unnoticed, as with the exploding church in “The Daemons” (8.5). Viewers got used to the shifting back and forth from outdoors film to indoors VT, though not everyone knew the terminology or reasons for it. (There’s a *Monty Python* sketch in which Graham Chapman leaves a building that’s shot on video, steps outside into a scene shot on film, looks puzzled, then re-enters the building and tells the people inside:‘Gentlemen, we’re surrounded by film.’ It seems quite clever now, but listen to the reaction from the *Python* audience and it’s rather muted, as if not everybody’s got it. Again, remember your grandparents…) Colour VT needed less intense

lighting, too. In the studio, bulky costumes could be worn rather longer without actors collapsing. Suddenly *Elizabeth R* and Silurians were much more practicable.

By the mid-'70s, Outside Broadcast units had taken delivery of much smaller video cameras.The old OB rigs, which came in big lorries that handily looked military enough to be used as vehicles for UNIT, had used big, fixed "Plumbicon"cameras like the ones in the studios. ("Plumbicon" because they were adaptations of the old "Orthicon" cameras, using lead oxide to make a roughly faithful flesh-tone.This meant that red was"better"for their purposes than blue or yellow, and the set and costume designers took note. Watch any early colour BBC costume drama to see the way they pick eras with lots of red in them, like the Tudors.)

The switch to portable EMItron cameras meant that smaller units, with two cameras and a sound man, could go anywhere. It meant that CSO could be seamlessly spliced in to location footage… or not, if Christopher Barry's directing (he never got the hang of CSO). It also meant that point-of-view shots were amazingly easy. Episode one of'Robot" simply couldn't have happened otherwise. It's staged so we see things from a robot's-eye view, thus turning the story into a thriller, the only thing which stops the script being a '60s throwback.

A quick examination of "The Sontaran Experiment"throws up other, unlooked-for advantages to video.The light drizzle which would have blighted this story on film isn't visible; the crisp image makes the bracken and ferns seem alien; the sound-recording, with actors having radio-mikes and the signal feeding straight into the tape instead of needing redubbing and post-synching, makes the whole thing more immediate; they could film miles from civilisation (not such an advantage when the star breaks his collarbone, but they weren't to know about that); it looks like it was really happening.

This last factor is important, because the previous use of OB in the BBC's output was live sports coverage. "The Sontaran Experiment" looks, and more importantly *sounds,* like an on-the-spot report. By 1990s standards, videotape is generally a subconscious "cue" that you're about to see kiddy TV, hence the *Neverwhere* debacle. In 1975 it was the other way around. When it came to the big

outdoors, it was *film* that told you this was going to be like *Catweazle.*You can see the change in perspective happening in *Doctor Who* after 1975. Later directors assume that film needs to be used to make jungle sets seem “real” (13.2,“Planet of Evil”; 14.4,“The Face of Evil”; 17.3,“Creature from the Pit”), whereas location work set in the present day is increasingly shot on video.

Audience expectation, at least as much as cost, is the reason for opting one way or the other. When David Maloney wants to play *auteur* and allude to other directors, he works on film. When he’s trying to clone *The Good Old Days* and has struck it lucky with a location which looks like a fantastic set, he goes OB (14.6, The Talons of Weng Chiang”), so Jago’s breath misting in the cold air of the theatre doorway is an unexpected detail that makes it all seem “real”.

There are occasions when the decision to use film is a major mistake. Having found the one locattion in Britain which looks like a generic *Doctor Who* corridor set, but a mile long - in 15.4, “The Sun Makers” - the programme-makers then shoot it on film, losing the “how-did-they-do-that?“factor which was the reason they selected it. As the whole plot revolves around a world where only the rich get to go “outside” this is a big, big flaw. Similarly, the interior locations for the TARDIS in “The Invasion of Time” (15.6) are shot on film, when they need to look “indoors” to have any impact. And when stock footage is sourced from the wrong system, there’s always an obvious mismatch. Compare the air-strike in “The Seeds of Doom” (13.6), which introduces film into an all-VT shoot, to the one in ‘The Hand of Fear” (14.2) where filmed location shots are interrupted by VT aircraft. By the time of “The Stones of Blood” (16.3) they’ve almost resolved this, and even the old turning-day-into-night trick of tinted transparencies over the lens very nearly works… but unfortunately, once again, film-footage CSO’d onto VT looks clumsy and ugly. This is why the shot of Romana hanging off a cliff smacks of something from a ’30s Saturday morning serial, the sense of an actress standing in front of a stock-footage backdrop and pretending she’s in danger.

If we remember that this programme was intended to be shown once, on Saturday evenings after an afternoon of live sports

coverage, then the idea of “better” (as opposed to “appropriate to the story and how we’re supposed to relate to it”) disappears. In the wider context of what every other BBC drama series was doing at the time, the ratio of film to VT is entirely typical, so *Doctor Who’s* position as a commentary on other programmes was maintained almost until the end. But by the mid-’80s, every British popular drama series was either pretentiously made on cheap film - such as *Howard’s Way,* which was like a series of *Dallas* on the budget of one episode - or shot entirely on VT. In many ways *Doctor Who* was an anachronism when it gave up film shooting in 1985, a hybrid of approaches like nothing else still being made. (See What Difference Does a Day Make? under 19.1, “Castrovalva” to see how the series started to adapt to this strange new ’80s environment… and to get some idea of how the *next* generation will feel about the film / video divide.)

genesis of the daleks 12.4

How Badly Does Dalek History Suffer?

Virtually every *Doctor Who* story raises awkward questions about the Doctor's ability to change history, but "Genesis of the Daleks"goes one step further. This is the story in which he's specifically, unambiguously *told* to mess around with the timeline.

Whereas in some stories he seems to inadvertently cause known events rather than altering them (especially when it comes to starting major fires… see 2.4, "The Romans" and 19.4, "The Visitation"), here we're led to believe that different rules apply. His Time Lord "handler" gives him three options: kill the Daleks in their cradle, make them less aggressive, or find some inherent weakness. The story ends with the Doctor's bold assertion that he *has* made a difference, though he thinks he's just set the Daleks back 'a thousand years'. Ergo, everything we think we know about Dalek history is thrown into jeopardy.

The problem goes beyond logic, and beyond a single script. *Doctor Who* fans are, on the whole, obsessive by their very nature. We like everything to have its place. We like all the strands to be tied together, or at least, we like the idea that they *can* be tied together. Rationally you could argue that every time the Doctor intervenes to save a planet, the knock-on effect is so great that it changes the complete history of the universe, so that whenever the TARDIS lands it's effectively landing in a different version of time.

But even though this thought might not bother a mainstream audience - who accepted the idea of all the UNIT stories starting with a clean slate, so that the Brigadier has to be persuaded about life on other planets every six weeks or so -it'd drive hard-core viewers stark raving mad. We're not used to that sort of chaos. (Besides, it'd rob the character of a lot of his power, and make his

planet-saving activities seem rather pointless.) We prefer to think that this particular fictional universe is coherent, which is why authors like Lance Parkin can happily write book-length histories of it; why the writers of the novels and the audios can come up with whole stories to "explain" one line of dialogue from a single episode shown in 1983; and, come to think of it, why this book exists. If we believe that the Doctor really does throw Dalek history off the rails here, then we have to accept that every prior Dalek story from 1963 to 1974 is "cancelled" and that something quite different happens instead. We have a hell of a lot to unlearn.

In 1995, *The Discontinuity Guide* came out and said the unthinkable, loudly proclaiming that Dalek history *does* change after "Genesis" (and therefore before it, retroactively speaking) so that nothing we see from "The Daleks" (1.2) onwards is reliable. It seemed positively rude at the time, but looking back on it now, the *Disco's* version of things simply looks shaky. Its only evidence for suggesting two different versions of Dalek history is that before "Genesis" Davros isn't an important factor, and that with Davros around the Daleks are divided into squabbling factions instead of being untied as a single force. Yet this is a poor argument, as most of the Dalek stories we see before "Genesis" are set in the centuries before Davros is recovered from the ruins of Skaro, so there'd be no *reason* for him to feature in their history until "Destiny of the Daleks"(17.1).The book's claim that the main difference between the two histories is Davros' survival - because, apparently, Davros listens to the Doctor's warnings in "Genesis" and fits devices to his chair which shield him from the Dalek assault - is even harder to credit, since Davros shows no sign of heeding anything the Doctor says and speaks of his survival systems in "Destiny" as if they're key components of his chair rather than recent add-ons.

Besides, whatever the Doctor may say at the end of "Genesis *"all* later Dalek stories assume that history hasn't been changed. The Doctor never regards his memories of early Dalek history as unreliable. In "Remembrance of the Daleks" (25.1) he speaks of the twenty-second century Dalek invasion of Earth as if it happened just the way we saw it happen (2.2, "The Dalek Invasion of Earth" natch). When he meets up with Susan in "The Five Doctors"(20.7), there's no hint that she's now living on a version of Earth that

wasn't wrecked by the Daleks. In fact, the only thing which might even hint at a change in Dalek history is Skaro's destroyed in "Remembrance" something which seems to contradict "Evil of the Daleks" (4.9), but this is so vague that a myriad of other explanations present themselves - see especially *War of the Daleks:* Should Anyone Believe a Word of It? under 17.1 - and an altered version of history certainly isn't what the script is trying to suggest.

If we want to look at the supporting evidence, then the later *Doctor Who* novels routinely assume that history remains stable, or at least isn't drastically re-written. Only the Missing Adventure *A Device of Death,* which takes place immediately after "Genesis" has the Time Lords watching the timelines re-shape themselves in the aftermath of the Doctor's intervention… and even *then* they consider the operation a limited success, saving thousands of worlds from the Dalek wars instead of the millions they were hoping for. (The scene also sees the Time Lords using "dampers" to keep the shift in time under control, so history at least stays the same basic shape, which is handy.)

And this is perhaps the most straightforward way of looking at things. The Doctor *does* make a difference, but only on a local scale, and from our point of view history still looks more or less the way it did. *His* history certainly doesn't alter. Nor does the history of Earth, which is far too central to the Daleks' plans to be spared by the Doctor's meddling. It's doubtful that his claim to have held back the Daleks by 'a thousand years' is really meaningful, as the Daleks can surely tunnel their way out of the bunker and re-stock their lab much faster than that. If you like, you can take his words as being figurative rather than literal, especially since he previously (and wrongly) claimed that blowing up the Kaled nursery would be the absolute end of the Dalek species.

Pushing the point further, it's worth remembering that the Time Lord on Skaro charges the Doctor with the mission of averting a *possible* timeline; it's feasible that the Daleks he mentions, which go on to become the dominant life-form of the universe, might not be the Daleks we've already seen but the Daleks we never got to see. Which would mean that by setting them back, the Doctor's actually creating the timeline we already know (for more of this somebody-

has-to-stage-manage-history approach see How Involved Are the Time Lords? under 15.5,“Underworld”).That’s not how the Doctor seems to see things, though, so it may be going a shade too far.

Of course, we can always look twice at “Genesis” and consider what might have happened if the Doctor hadn’t become involved. He seems to be an accelerant here, making things happen ahead of schedule rather than actually changing anything (so maybe the delay to the Daleks in the last episode cancels out the rapid sequence of events he’s already caused…). He warns the Kaleds about Davros, so Davros makes sure the Kaled dome is destroyed, and sets in motion the events which culminate in the extermination of all the scientists in the bunker. Without the Doctor’s involvement, much the same thing would have happened, except for the dome’s destruction… meaning the Kaleds would all have been wiped out by the Daleks instead. In fact, the big change here may be to Thai history. If the Kaled dome hadn’t been destroyed then it’s unlikely that Bettan and her Thai guerrillas would have been able to seal the bunker, and the Thais would have suffered vastly more casualties. But Davros would still have been exterminated, or supposedly-exterminated. However, there’s one other change to consider. When the Doctor arrives on Skaro, the Kaled mutants aren’t yet ready to be put into the Dalek casings. Davros hasn’t finished psychologically conditioning them. When the Doctor’s tinkering forces Davros to send them out into the field, he jury-rigs them by adding a ‘computer program’to their make-up which supposedly limits their actions (but not enough to stop them shooting him, obviously).

So the one thing the Doctor *does* ensure is that their brains are never quite finished.The doomed specimens in the lab are given the chromosomal changes ordered by Davros, yet the active Daleks on Skaro are let loose *before* these changes are made.The Daleks sealed in the bunker at the end of the story, and presumably those Daleks whom they make in their own image, still have the computer program instead of proper Davros-style conditioning. (This may help to explain the Daleks’ new-found robot-ness in “Destiny of the Daleks”, although by the time of “Remembrance” it’s Davros who’s busy attaching robot parts to Dalek units and the “mainstream” Daleks believe in a kind of racial mutant purity.)

Is that the difference, then? Is this really what the Doctor means when he says that they've been set back, and what causes the later Dalek wars to skip a few thousand planets? Are the Daleks hampered by the limitations of their computer-controlled minds, giving the other species of the universe a greater advantage against them? If so, then the Doctor's mission for the Time Lords is a success after all.

But ultimately, the Doctor's supposed victory in "Genesis of the Daleks" is personal rather than historical. In his own mind, he's fulfilled the mission according to the third option he was given: to find some weakness in Dalek-kind. By going through the process of arranging their destruction, he's finally come to realise that they'll just end up bringing unity to *other* species. Out of the evil of the Daleks, some good will eventually come.This is the weakness he's discovered, a flaw in the Daleks' methodology that *he* now understands even if it's of no particular use to the Time Lords. Some have tried to argue that the Time Lords set the whole thing up to cure the Doctor of his pathological hatred of the species, or of his parochial, Earth-based frame of reference, but that seems a little extreme…

terror of the zygons 13.1

September or January?

Just when Philip Hinchcliffe thought he'd got to grips with the production timetable of *Doctor Who*, a directive came from the BBC hierarchy telling him that the new season had to begin in September, and not January as planned.

On the face of it this was a strange decision, but the logic was impeccable. Not only was September the start of all major Saturday Night programmes (and remember, at this point Saturday Night was *the* night for TV, a weekly "big event" which yielded the highest-rated shows of the 70s), but in this particular year ITV was attempting to break *Doctor Who's* traditional hold on Saturday tea-time fantasy. They'd been trying this since, rankly, day zero. As soon as the pre-publicity for *Doctor Who* started back in 1963, ITV jumped in with a "spoiler" called *Emerald Soup,* scheduled directly against the BBC's offering; nobody now living remembers anything about this programme at all. But now, with Italian co-pro-duction and US distribution, came the most expensive programme - per hour - ever attempted in Britain.

All the signs were that *Space: 1999* was going to be huge. In terms of on-screen talent, scripts, effects and direction, this was the single most concerted effort yet made to "own" Saturdays. Why it failed tells you more about the climate of mid-'70s British TV than any number of statistics. However, you'll need a quick history lesson.

BBC Television began in 1936, funded by the License Fee and untouched by "vulgar" commercial interests. As viewing figures rose - especially after the Coronation of Queen Elizabeth in 1953, a never-before-imagined televised event which *demanded* the country's attention - questions were asked as to why this non-commercial, nongovernment body should have all the action.The incoming Conservative government decided on a compromise, which characterised UK television until the very recent past. The

BBC would get 100% of the Licence Fee, while the new commercial companies would get 100% of advertising revenue.

That's "companies" plural. The Conservatives wanted as much competition as possible. They split the nation up into "regions" and made a law that each region was to have two broadcasting franchises, one for weekdays and one for weekends. There was only one commercial channel, ITV, but what you actually saw on that channel depended on where you lived and which company had the local franchise. In practice, most drama and comedy series on ITV ended up being shown in every region, but not at the same time or even in the same order.

This meant that when the BBC got its act together, and started making more low-brow programmes as well as the "quality" stuff, ITV as a network was in disarray. No two companies showed the same thing at peak time, all of them trying to get their home-made material the best ratings. Of the sixteen ITV companies around in the 70s, five "big guns" ruled the majority of the air-time. Lew Grade's ATV, makers of *Space: 1999,* was the biggest. (Lew Grade's nephew Michael, then at London Weekend Television, will return to the story of *Doctor Who* in the '80s. It won't be pretty.)

So the debut of *Space: 1999* never really happened. Some companies, notably ATV itself, broadcast it opposite episode two of "Terror of the Zygons"Some showed a western or a talent-show in that slot, and kept *Space: 1999* for later on in the evening. Some showed it on a different day altogether. And thereafter, no two companies showed the episodes in the same sequence. There was a word-of-mouth buzz, namely "don't bother, *Doctor Who's* fighting Nessie", but the ITV companies were too busy competing against each other to form a serious threat to the return of *Doctor Who* to the autumn schedule.

Now, *Doctor Who* had been an autumnal series right from the start, running eleven months of the year until 1969. The decision to move the season opener to January in 1970 was part of the big shift to colour and twenty-six episodes a year. It's worth pondering the place of the series within the Saturday evening schedules in those pre-channel-zapper days. In the 70s, Saturday Night wasn't so much a line-up as a weekly ritual. The usual running-order was: sports

results and the Pools (a system of socially-acceptable gambling, which required the public to try to predict which football matches would be goal-less draws… strangely not popular in other countries); a kiddie show (often with a puppet of some kind, Lamb Chop and Basil Brush being the easiest to explain); regional news; *Doctor Who;* then either *The Generation Game* or *The Black and White Minstrel Show* . Next came a popular drama, either set in a small-town police station or in the Edwardian era. This and the subsequent comedy show would last fifty minutes each, and could be replaced by a feature film (sometimes in colour!). You can see the logical progression from 5.30 pm to 9.00 pm. Just to reinforce this, from about 1976 many of these programmes had curiously similar diamond-shaped logos.The BBC never had serious opposition to its Saturday schedule, despite Michael Grade's attempt to poach all the BBC's best stars and put them in a weekly spectacular opposite Season Sixteen. Yes, that's right: the bugger was trying to sabotage *Doctor Who* even then.

Nevertheless, the slot usually occupied by *Doctor Who* in the '60s needed filling for half the year after the series slimmed down to twenty-six episodes in 1970. They tried an imported American show called *Star Trek,* but it bombed. It was moved to Monday evenings and was in perpetual rerun for over a decade (by which time most people had seen it, if not actually *watched* it, so it became an "old favourite" through repetition rather than good ratings). It became apparent very early on in the '70s that "spooky adventures" worked better when the nights began early; in Southern Britain the difference between June and December sunset times can be five hours. So September to March was better than January to June.

This wasn't a snap decision. In the series' first few years, the start of the *Doctor Who* season moved from late November, to Hallowe'en, to late September, to August. In the Pertwee days the start date was rigidly New Year (or a day or so later), until "The Three Doctors" in 1973, when the BBC experimented with making it part of the Christmas festivities.

The logic is clear: by BBC standards, the content of *Doctor Who* was less important than the universality of its demographic. In 1975, they weren't simply competing with another "science fiction" show

- aimed squarely at teenage boys - but against other BBC-made “family” programming.

planet of evil 13.2

What Does Anti-Matter Do?

In *Doctor Who* we've had stories based around various different things called "anti-matter" all of which are based on physics as it was understood at the time those scripts were written. Which means that they all contradict each other. By invoking the science as it's known here in the twenty-first century, we've got some hope of reconciling these accounts and working out what's supposed to be going on here.

In theory, there's nothing odd about anti-matter. It's just made of particles with charges, like regular matter, but the charges are different. An atom of hydrogen (and hydrogen's the most basic element, if you failed GCSE science) has at its core a positively-charged proton and, "orbiting" around it, an equal and opposite amount of charge: an electron. If you had a negatively-charged particle at the centre and a positively-charged thing buzzing around it, then that would be anti-hydro-gen, n antiproton orbited by a positron. Positrons - and it's so very tempting to think of them as "evil electrons"with eye-patches, which is undoubtedly how we'd show them if we were doing this in the style of *South Park* - do definitely exist. PET scanners in hospitals are built to detect them; PET stands for Positron Emission Tomography.

There's nothing in the maths to suggest that regular, common-or-garden, positive matter should be any more plentiful than anti-matter.The sums work just as well for both, and physics is -after all - maths taught badly. But as even Trekkies know, put matter and anti-matter side-by-side and they annihilate one another, leaving behind a lot of electromagnetic radiation (light, heat, radio waves, that sort of thing). If there were an equal amount of matter and anti-matter, even just in "empty"space, then we'd hear about it. So as soon as anti-matter got taken seriously, people asked the obvious question: if the universe is "democratic" then there should be an equal amount of antimatter somewhere. Where is it?

The obvious suggestion was that it had its own universe, like ours but “upside-down” Richard Feynman, maverick physicist and bongo-player, once speculated that if positrons were “just” electrons going backwards through time (and this was seriously proposed, in the 1950s) then maybe there was just one electron / positron going backwards and forwards through time and “weaving” all of matter together. As the number of electrons in a grain of sand has at least twenty noughts on the end of it, a good way of giving yourself a nervous breakdown is to try to imagine how old that electron would be at the end of its journey. Feynman felt happy with this kind of speculation because he and John Wheeler - the man who came up with the snappy term “black hole” - had demonstrated that there was a symmetry between the passage of time; no real reason why “forwards” should be better than “backwards” as far as particles were concerned.Thus, in the popular imagination, anti-matter progressed through negative time. (As in the gibberish science of Star Trek, notably the cop-out ending of the episode “The Naked Time”, f you can remember it.)

By the mid-’70s this idea became an easily-digested “solution” to mysteries like quasars, black holes, time only going one way and whether yetis built Atlantis to house their flying saucers. What the SF-loving public wasn’t so comfortable handling was *charged parity violation.* In essence, this is the observation that particles and their anti-particle “mirror images” aren’t quite the same. This is where “Planet of Evil” comes in, as mid-’70s primers were speculating on how this might be resolved through “mixing violations”

All the fundamental particles that make up matter - electrons, neutrons, etc - were shown to be themselves made up of “particulettes” notably quarks. There are six “flavours” of quark, plus so-called “strange” quarks which are something like anti-quarks. Put one particular kind of quark together with a strange quark, and miraculously it makes a particle which “mixes” with its anti-particle. The resulting particle is called a “kaonVThis is the so-called “strange matter”that the Rani gets so excited about in “Time and the Rani” (24.1), but let’s try to forget we mentioned that story in relation to legitimate physics and get back to “Planet of Evil”.The crystals Sorenson finds on Zeta Minor are potentially something like this strange matter, neither matter nor anti-matter but made from

mixed-up bits of both. They aren't nearly dense enough, though, as in theory a sugarlump-sized piece of strange matter should weigh a few hundred tonnes.

It does, however, take something pretty extraordinary to create this kind of strange matter. But then, if we accept that the *Doctor Who* universe is a universe with an edge - and it's been suggested in too many stories to avoid - then we've already got something pretty extraordinary.

It rather depends on how you define an "edge" For time-travel to function as it's been explained (if at all) in *Doctor Who,* there can't be a physical "end" to the universe. The universe has to be fourdimensional; the galaxies separate from one another as space expands, but it doesn't expand "from"a centre"to"an edge. All places are the centre, just as everywhere on the surface of a sphere is the same distance from the core. (The usual pop-science description: if you want a model for the way the universe expands, then draw some galaxies on the skin of a half-inflated balloon and then blow it up a bit.) As Giordano Bruno said, just before they burned him at the stake in 1600:'We can assert with certitude that the universe is all centre, or that the centre of the universe is everywhere and the circumference nowhere.' (See also How Can the Universe Have a Centre? under 20.4,"Terminus"

Zeta Minor may well be at the edge of the area where there are stars to be seen, but more significantly it's described as the 'boundary' between one state of matter and another. The area of the black pool, where this crossover seems to take place, produces the mysterious crystals. Earlier, in "The Mutants" (9.4), the Doctor speculates on a place at the other end of space where anti-matter versions of people go when they've been "converted" by matter-inversion.The whimsical tone of this speech allows us to posit that "other end" might not be a physical place, but a state of being co-existing with this one in a different spatial dimension, and that - as suggested in "Arc of Infinity" (20.1) - there are "gateways" located within ordinary space. The 'boundary' might be in the heart of a galaxy, like the eponymous Arc of Infinity, or simply on the edge of a spiral galaxy as Zeta Minor seems to be.

The latter is more likely to have gone unnoticed. And there's a side-

effect worth noting here. As mentioned under “Inferno” (7.4), material from other universes has almost always manifested itself in a way which “undoes” evolution. The hint seems to be that time runs differently for things affected by peculiar forms of matter. Perhaps, as people thought in the 1950s, anti-matter runs counter to our chronology after all.

Now, in “The Three Doctors” Omega seems to have complete control over anti-matter, using it as cosmic jelly and converting it from anti-matter to matter to anti-matter again whenever he feels like it.To get a grip on how this works, let’s get back to that question: in *our* universe, why does the amount of matter seem to greatly outweigh the amount of anti-matter? Well, in 1999 researchers at CERN and Fermilab came up with one possible answer, but it’s a bit technical. In short, the transition from anti-matter to matter is easier than the reverse. The agency of the “reverse” transition is something called an X Boson, but the universe is now too cool to allow many of these to exist. So, maybe Omega’s got some kind of deal going with these X Bosons.

In our universe, as it is now, you might see one created every (tight squeeze here) 10,000,000,000,000,000,000,000,000,000,000 years. But we’re talking about someone who used to redecorate stars for a living, so this might not be a problem for him. In “Arc of Infinity” something called quad magnetism allows both matter and anti-matter to coexist, and allows the Doctor to be ‘bonded’to Omega. As standard-issue magnetism involves forces connected to photons, maybe this mysterious “quad” variety is related to X Bosons instead. It’s supposedly the product of collapsing Q-Stars (like Q-cars and Q-planes, custom jobs?), and the ‘only’ force which can shield anti-matter within our cosmos.

So there you have it: any anti-matter you might find is either from another universe, or created in a lab. (Fermilab at present can make sixty-billion antiprotons an hour, but it takes a lot of energy.To produce one kilo of it, you’d need to spend all the money that was spent in the 1980s by all the world’s nations put together.There are 600 *trillion* protons in the aforementioned single grain of sand.) As a power-source it’s a dud, unless you can find a way of “importing” it.

So you can see the appeal of nicking rocks from Zeta Minor.

pyramids of mars 13.3

Where (and When) is Gallifrey?

The evidence seems contradictory. For every detail that suggests the Time Lords co-exist with us, here and now and in this galaxy, we have something else to say they're in the far future, the remote past, the centre of the universe, the centre of time or all of the above. Many of the conclusions we tend to reach are based on what feels right rather than what's said out loud. Sometimes the writers had the same instincts, sometimes it's anyone's guess what they were thinking and sometimes they didn't have an opinion at all.

Let's start with the crude, astrophysical "where" question. Is Gallifrey in Earth's galaxy?

ln"Pyramids of Mars", utekh requests binary coordinates from 'galactic zero centre'.This has been taken to mean that Gallifrey is somewhere in our galaxy, but it's by no means clear. Co-ordinates *from* galactic zero-centre: using the hub of Earth's galaxy as a starting-point, how do you get to this place? These co-ordinates could feasibly lead you anywhere in the universe. Besides, in the five-thousand years that Sutekh's been sat on his scatter-cushion, the galaxy has revolved a bit (0.00001125°, but over a parsec that's the distance from here to Pluto). Stars and planets alter their relative positions, so you *could* argue that for this data to have any validity to Sutekh, the direction has to be towards another galaxy. On the other hand, this is Osirian god-like technology we're talking about, and a computer that can keep records of every known planet can surely handle little things like shuffling solar systems.

Then there's the throwaway comment by the Magritte-style Time Lord in "Terror of the Autons" (8.1):'My co-ordinates seem to have slipped a little… still, not bad after 29,000 light-years.' 29,000 light-years suggests a spot well within Earth's galaxy, and it's not that bad an estimate for the distance to galactic centre. But leaving aside the fact that Robert Holmes couldn't tell a galaxy from a Mars

Bar and thought a constellation was the same thing as a planetary system, we can't assume much from this. Nowhere is it said that the messenger has come straight from Gallifrey, and Time Lord HQ didn't even have a name when the story was written. He could have come straight from another "case" or from some sort of local monitoring station for all we know.

Was Holmes seriously trying to suggest that the Time Lord world was at the centre of the galaxy? Weeeeeell… in spite of his overwhelming disregard for cosmology, it's not impossible. '29,000 light-years'isn't the sort of figure you automatically pull out of the air. Let's remember, in the 70s there was little real "continuity" in *Doctor Who,* and that running themes rather than hard facts held the series together. The black hole from which Rassilon recovered the Eye of Harmony in "The Deadly Assassin" (14.3) wasn't supposed to be the same one created by Omega in "The Three Doctors" (10.1), but the same imagery underpins both. Holmes' scripts tend to regard Gallifrey as being a great all-seeing lens at the centre of galactic events, hence terms like "Eye of Harmony" and "Panopticon" and everybody knew that there was supposed to be a black hole in the middle of the Milky Way. So did he deliberately pick this as a good central spot from which the Doctor could be "watched"? If somebody more science-orientated had just happened to mention the distance to the galactic hub, then it's at least feasible.

"Feasible" Well, there you have the problem. A galaxy containing both Earth and Gallifrey is plausible, yet there's no more evidence to confirm it than there is to contradict it. ("The Deadly Assassin" has the Time Lords refer to Earth as being in Mutter's Spiral, which has often been taken as a reference to Earth's galaxy, but this doesn't seem to be what the script implies.) So instinct takes over. It feels right for Gallifrey to be in "our" part of space, because it suits the aesthetic of the rest of the series. Earth is important, for some reason; Earth's galaxy is important; humans and Time Lords are quite similar, which is to say, they're closer biologically than (for example) humans and Kaleds; rgo, Gallifrey should be close to home.

Many writers seem to have taken this as read, and certainly it was

accepted as a definitive “truth” in the New Adventures era.The‘29,000 light-years’ line seems so neat that perhaps the best option is to assume Gallifrey *is* in the middle of our galaxy, at least until there’s better evidence that it isn’t. After all, the Time Lord civil servant in “Terror of the Autons” surely can’t have *that* much to do in the outside universe, nd his appearance *does* suggest that he’s been “transported” to Earth from a fixed base of operations. In “The Brain of Morbius” (13.5) the Doctor lands on Karn and says that he was born nearby, which apparently means that Karn is in the region of Gallifrey. As in “The Creature from the Pit” (17.3) the Doctor indicates that he *was* born on the Time Lord homeworld, something which was by no means certain in the 1970s (see The Lore of 15.6, “The Invasion of Time”). And there’s an Earthman living on Karn, at least implying that it isn’t *too* far from human-space.

The question of *when* Gallifrey exists is stickier. We’ll assume here that there’s a kind of Gallifreyan “real time” that’s in synch with the time which passes for the TARDIS crew, so the gaps between the Doctor’s encounters with his own folk are as far apart for him as they are for them. This isn’t stated anywhere, but if you’re trying to make sense of this universe then you’ve really got to take it as a given. (See also Do Time Lords Always Meet in Sequence? under 22.3,“Mark of the Rani” Incidentally, it’s the story immediately after that -“The Two Doctors” - which seems to be the one occasion when the Doctor breaches the “real time” rule. But all the writers of subsequent *Doctor Who* spin-offs have taken the rule for granted, with the exception of Terrance Dicks, whose novel *Warmonger* insists on having the Doctor casually wander into the Time Lords’ past to warn them about Morbius. This non-linear approach to Gallifrey could produce some interesting material, though it doesn’t in *Warmonger,* but it also contradicts virtually everything we see of Gallifrey in the TV series.)

Boil the “when” question down to its basics. Is Gallifreyan present in our past, our present or our future? The series never makes up its mind about this.The unaired pilot episode from 1963 had the Doctor claim to be from the forty-ninth century, which might explain how he knows so much about the run-up to the age of Magnus Greel (14.6,“The Talons of Weng-Chiang”), but it’s an idea

that was fortunately dropped from the finished programme. Apart from one jokey, throw-away line in “Nightmare of Eden” (17.4), there’s no real evidence that Gallifrey is literally ahead of us. If it *were,* then there’d be a perpetual risk that events in our present might affect the development of the early Gallifreyans, another potentially interesting thought that isn’t backed up by anything onscreen.

(FASA’s *Doctor Who Role-Playing Game* - yes, it may sound like an obscure source, but at least one writer working on the series in the ’80s had read it - blithely assumed that Gallifrey was in the far future. In FASA’s universe the TARDIS can’t go any further into the future than 21.3, “Frontios” because that would take it into the future of Gallifrey itself and allow the Time Lords to discov er their own destiny. Charming, but not wholly convincing.)

As for the present… well, stories like “The Three Doctors” (10.1) take it as read that present-day Earth and present-day Gallifrey are somehow linked, though this could be more to do with the mechanics of time-travel than anything. If there’s such a thing as Gallifreyan “real time” then it’s reasonable to suppose that events on Earth and Gallifrey might appear to happen “simultaneously” while the Doctor’s larking around in England. Stories like “The Brain of Morbius” in which a planet in Earth’s future seemingly has an ongoing relationship with Gallifrey in the Doctor’s time, indicate that Time Lords have no trouble temporarily “tying” their own present to other points in history. It happens to twentieth-century Earth quite a lot, but twentieth-century Earth is by no means alone.

That leaves the past. In the ’70s, nobody seems to have considered the idea that Gallifrey could have been “the oldest civilisation” The concept that it might exist in the ancient past is a very ’80s one, and with good reason. By the ’80s one-and-a-half generations had grown up with *Doctor Who,* so Time Lord history started to become “mythic”, s if it were a new form of classicism. In 1977’s “The Deadly Assassin” the ancient secrets of Rassilon only mean something to Gallifrey itself, and even the Time Lords barely remember the details. In 1980’s “State of Decay” (18.4), the long-ago war between Time Lords and Giant Vampires is said to have spilled out across the whole universe, and events are described as if

Rassilon were young when the entire continuum was new. The New Adventures stated, clearly and unequivocally, that ancient Gallifrey lay in the ancient past.The novel *The Crystal Bucephalus* even hints that by the time of humanity, Gallifrey is a long-dead world where people from Earth can safely build restaurants.

A"past"Gallifrey makes sense, and explains why the Doctor never runs into any of his non-time-travelling ancestors (we can safely assume that the TARDIS can't, or won't, travel into the past of Gallifrey itself), but that doesn't mean the modern Gallifrey exists in the distant past. A running suggestion in the series is that the Gallifrey we see from "The Deadly Assassin" onwards is in some way outside time, not in the past, present or future at all. Graham Williams suggested that the Doctor's homeworld is somehow at the "centre of time" when he became producer, so Gallifrey becomes a kind eternal watchtower, verseeing all of history from somewhere beyond / within / separate from the normal course of events. In "Shada" (17.6) we see the Time Lords' prison-world, and it's presented as a place that can't be reached by normal means but only through the TARDIS, again suggestive of a culture existing outside time as we know it. But the real giveaway, the only definite, absolute summary of the Doctor's point of origin and therefore our best evidence, comes in "The Stones of Blood" (16.3). The Doctor is asked whether he comes from outer space. His reply, which seems quite serious, is that he comes from *inner time*.

This has to be considered key. If ancient Gallifrey existed in the distant past, but removed itself from normal history when Rassilon balanced the Eye of Harmony and turned his society into a culture of 'galactic ticket inspectors', then everything locks together neatly.Gallifrey has a physical location, but isn't "there" now. (If you believe the *Crystal Bucephalus* version, then at some point in the Doctor's future Gallifrey will fall and return to normal-time, leaving the planet as a barren world throughout the course of recorded history. The Time Lords must at least realise this, and feel it to be a little ominous.)

In "The Invasion of Time" (15.6) Rodan is in charge of Time Lord Traffic Control, monitoring space-fleets as they pass close to the planet. In purely physical terms, this makes no sense. The universe

is so immense that even the busiest parts shouldn't have anything comparable to "airspace" But if the fleets in question are those with some form of time-travel capability, and have to pass close to Gallifrey's "centre of time" region while in transit, then it all seems more reasonable.

(Then again, Williams'"centre of time"idea takes on a very different meaning if you look at it in terms of hard/er science. If you assume that the universe is currently expanding, but will eventually stop and begin to contract, then the "centre of time" is the apex of the expansion. But despite the amount of wanton pop-science found elsewhere in the Graham Williams era, it seems doubtful that this is precisely what he had in mind. "Centre of time" sounds more like a way of symbolically putting the Time Lords at the heart of the universal order than a technical description. Besides, the idea of Gallifrey being at the apex of the expansion doesn't gel with the Doctor's 'inner time' comment at all, a comment significantly made halfway through the Key to Time season; the season in which Williams tried to lay out his view of the way the *Doctor Who* universe works.)

"Frontios" (21.3) claims that Earth's destruction in the far, far, far future is beyond Gallifreyan experience, and remember, the Time Lords are supposed to be able to see everything. The TARDIS gives the error message "time parameters exceeded" when it tries to go any further. Whenever Gallifrey is, it doesn't make sense that a TARDIS can't visit an era just because it's a long way into the future from a human point of view, so this has never been fully explained.The"prettiest" solution is that just as the Time Lords seem to have developed in the far-distant past, there's another power in the far-distant future which stops them looking too far ahead. This notion was a favourite with New Adventures authors, some of whom were planning on basing a story arc around it when the BBC took their license away (which explains why a similar idea has since turned up in both the BBC novel *Alien Bodies* and its bastard *Faction Paradox* offspring, and why it's being mentioned here).

Another fan-suggestion that's been made often enough to at least be worth addressing: that Gallifrey is Earth in the far future. On the surface this seems odd, as Earth's final fate is apparently known.

But planetary destructions are easy to fake, and this would at least explain why the TARDIS has such trouble interfering with the "Frontios" era. Future-Earth must be protected for the sake of Gallifrey's past. In "The Mysterious Planet" (23.1) people hiding on Earth are tapping the Matrix, and the Time Lords choose to cover this up by moving the planet's entire system rather than by destroying the world or killing everyone on it. Many people would like a good reason for this grotesquely cumbersome plot.

On the other hand, if you're the kind of person who wants to be told that Gallifrey is Earth in the future then you're probably the kind of person who thinks it'd be really neat if the Doctor turned out to be Anakin Skywalker's dad.

the android invasion 13.4

Why Does Earth Keep Getting Invaded?

We ve waited until now to bring this up, as “The Android Invasion” is the last “formula” invasion-of-Earth story, written by the author of the first (2.2, “The Dalek Invasion of Earth” naturally). The Daleks’ motives for conquering and destroying were never really investigated, aside from the rather unlikely notion of removing the planet’s magnetic core and steering Earth around the cosmos like a very slow battleship.This sets the tone for much of what’s to follow.The monsters invade England / Earth because… well, because they’re bad. And because the writers of the early series were part of a generation that had spent six years waiting for the Nazi paratroopers to land.

However, as the potential conquests become more outlandish and more frequent, patterns emerge. Some invaders want this planet and find the occupants an inconvenience; some want humanity and have decided to grab the source. And some, notably the Sontarans and therefore the Rutans, just see it as a handy staging-post.

Now, if you want to enslave an intelligent race, Earth is a good place to come as the residents are bright, spunky, multi-functional and not terribly good at spotting alien interventions (well, they failed to notice the Skarasen).Given the amount of external intervention in their evolution since the first amino acids started combining -17.2, “City of Death; 15.3, “Image of the Fendahi; 8.5, “The Daemons’; 13.3, “Pyramids of Mars” and 11.3, “Death to the Daleks” as a brief introduction - the humans’ capacity to mythologise anything they can’t handle becomes a definite survival advantage, like tool-making or antibodies.

Those alien forces with precognitive or time-travel facilities may take pre-emptive action against the planet (9.1, “Day of the Daleks”,

14.1, “The Masque of Mandragora”, 22.1, “Attack of the Cybermen” and possibly 25.3, “Silver Nemesis”, if that story has any hope of making sense). Other infrequent motivations include a “lost” scout deciding to make this world a base of operations (5.3, The Ice Warriors”, 13.1, “Terror of the Zygons” and stretching a point 14.2,“The Hand of Fear”and 12.2, The Ark in Space”).

It’s also the case that many species are drawn here by other circumstances, usually the Master. The Doctor may well have attracted some of them by his very presence.This is undoubtedly the case in five of these incidents (11.5, “Planet of the Spiders; stands out because it’s the one occasion when the Doctor acknowledges his culpability). If Earth” equals “England; then there’s a pleasing parallel here. Modern historians have argued that Britain became the throne of the industrial revolution, and therefore a leading world power, not because it did one thing right but because of a combination of a dozen minor factors which just happened to produce the ideal conditions. It’s at least possible that Earth becomes a key world in the same way, because it’s the homeworld of a future empire *and* on the galactic conquest-routes *and* of interest to a couple of renegade Time Lords *and* loaded with lots of useful minerals. It’s the English way of cosmic history.

Usually, however, beings come specifically to this planet with the intention of taking what they can get and removing / enslaving the sitting tenants. The logic of this is questionable. As the outer planets of this solar system are mainly gas-giants, and their moons predominantly ice, the heavier metals are concentrated closer to the sun’s gravitational pull (like here). Only one planet in the selection-box is currently seismically-active, so the magnetic field, internal temperature and interesting combinations of elements are likely to be better on Earth than on Mars. Fair enough so far. Yet, Venus is very similar. Admittedly the atmosphere’s a bit of a worry, all that sulphuric acid and leadmelting surface temperature (to say nothing of the atmospheric pressure), but beings capable of making a fake Cotswold village full of androids or mining the core of Earth and steering it around the place shouldn’t be daunted by a little thing like the Greenhouse Effect. The exotic minerals that might be useful to space-travellers would be more likely to crop up on Venus or Mercury (see Why Are Elements So Weird In Space? under 22.2,

“Vengeance on Varos”). Moreover, this is far from being the only solar system in this neck of the woods. So far, despite the crudity of the detection-methods, over fifty have been found in the last decade. So why come here?

Stepping outside legitimate astronomy to *Doctor Who* logic, the overwhelming proportion of inhabitable planets are inhabited, and have well-developed, spacefaring species who - when not attempting to conquer us - are dealing with each other. If we’re not covered by a protection-treaty, nor allied to a major power, then this is “virgin” soil with all the gene-patents and mineral rights up for grabs. A solar system is a big area to quarantine or protect, and as our fishing-fleets have found, anything not constantly patrolled is bound to be encroached upon by desperate neighbours. Besides, at least two other space-travelling races have come from this system (the Ice Warriors and the Fendahl… plus the Silurians if 21.1,“Warriors of the Deep”, is to be taken at face value). Maybe some ancient grudge against Earth’s system is being avenged.

And that’s not the only cultural consideration. According to *Doctor Who,* the future of humanity sees our descendants bullying, oppressing and ripping off everyone else just because they seem to think it’s part of their destiny. Humans like building “toys” they like using weapons and they like dealing with perceived challenges, the men especially. Faced with the vastness and blankness of the outside galaxy, it’s conceivable that humans might be inclined to target inhabited planets just as a way of keeping their culture together. Nothing makes a population feel good like thrashing an enemy, even if the enemy in question is much weaker and doesn’t stand a chance of fighting back. And most intelligent species we see seem to have developed along astonishingly similar lines to humanity. Do the Kraals pick on Earth, rather than an uninhabited planet, simply because they see that sort of aggression as being part of their nature? Since we see nothing of Kraal civilisation but the military-industrial complex, do they have to keep invading places just to keep their own domestic economy and political system afloat?

Other options present themselves. The distances between stars being what they are, the only beings to deliberately target Earth

must be able to travel faster-than-light (ignore the Urbankans in 19.2, “Four to Doomsday” for now). There may be some kind of local navigational phenomenon which enables or causes spaceships to get here easily. Both “The Android Invasion” and the quasi-canonical novelisation of Remembrance of the Daleks” (25.1) hint at a wormhole of some kind near Jupiter.This may well account for Voga crossing the galaxy in a few generations and settling into orbit without anyone noticing it at first (12.5, “Revenge of the Cybermen”). This might also be connected with what Adric does to the freighter to make it travel 65,000,000 years back in time in 19.6,“Earthshock”, though that’s pushing things.

Meanwhile the Brigadier believes that once we began broadcasting on radio frequencies and sending probes into space, we’d ‘drawn attention to ourselves’.This may explain why the rate of inva-sion-attempts-per-annum shoots up in the 1970s, but not why Southern England is the site for so many. One obvious candidate for this run of bad luck is the large lump of Validium that was launched from these parts (“Silver Nemesis”), in which case it’s the Doctor’s fault again. Another possible reason is that Azal, the last of the Daemons and apparently the only “pre-historic” alien to remain on Earth of his own free will, is still buried at Devil’s End and egging on the aforementioned industrial revolution. (There’s also Cessair of Diplos from 16.3,“The Stones of Blood”, but she doesn’t seem to have done much in the last four-thousand years.)

However, it should be remembered that the *Doctor Who* universe isn’t all astronomy, worm-holes and radio-waves. Many of the “rules” that govern this continuum are founded in mythicism rather than science, especially in the ’80s stories, and questions like these can have solutions so grandiose that they’re more like Biblical epics than logical theorems. When we’re told about the Time Lords’ war with the Giant Vampires in “State of Decay” (18.4), we’re told about something that seems to have changed the nature of the universe in a quite profound way, especially if you care to believe that the Time Lords had a hand in “fixing up” the current state of history. It’s at least feasible that Earth’s real significance, perhaps underlying one or more of the less spectacular theories suggested above, lies in something that’s worked into the fabric of history rather than something purely material.

The New Adventures are, as ever, a good indicator of the way later *Doctor Who* writers saw this universe. Ben Aaronovitch's storyline for the novel So *Vile a Sin* aimed to clear up the "what's so special about Earth?" matter once and for all, with a solution which revealed certain nexus-points in history to be the result of botched repair-jobs after the Time Lords' formative wars. If only Aaronovitch had finished the book, this might actually have held some weight.

the brain of morbius 13.5

Who Are All These Strange Men in Wigs?

The set-up: the Doctor, engaged in mental combat with Morbius, rewinds through his previous lives and lets us see them all on a handy piece of nearby apparatus. And there are more than three of them. You can imagine the debates that followed in school playgrounds and university common-rooms; if William Hartnell was the original Doctor, then whose were the faces "before" his? Four popular theories have emerged over the years.

1. They're Morbius.The one"recognisably"non-Doctorish face we see is that of Michael Spice, who's also the model for the bust of Morbius in Solon's living-room. We may see the eight unknown faces immediately after the Doctor's, but in fact the Doctor gets the upper hand after Hartnell's face appears. In the end it's clearly the Doctor who wins the contest, as Morbius' head explodes while the Doctor only collapses after the link is severed. So, the Doctor forces his way back through Morbius' previous selves and eventually causes goldfish-bowl-head to blow a sparky (although in fact, as it's written in the script, Morbius' head explodes because of the strain of combat rather than because he loses).

The big drawback with this theory is the fashion sense of the people we see on the display, and the idea that Morbius was attempting cosmic domination whilst parading about in fancy dress from Earth history. On top of that, you have to explain why Morbius is shouting 'back… back to your beginning!'while the mysterious faces are appearing. Perhaps he's confused, or simply ranting.

2. The Doctor is older than he claims, and older than the other Time Lords seem to know. This was clearly the idea Hinchcliffe was getting at, as the 'costume" found in the old console room in "The Masque of Mandragora" (14.1) isn't recognisably like anything

we've seen before.The original plan was to have fairly distinguished actors represent 'unseen" Doctors, but nobody was interested and the production team stepped in (see below for a factual list). A subsidiary theory is that along the way the Doctor has"projected"versions of himself, as he does in"Logopolis"(18.7) and K'Anpo does in Planet of the Spiders" (11.5). This was first advanced as a means of excusing the scene in 'Destiny of the Daleks" (17.1) in which Romana tries out" various bodies before plumping for that of Princes Astra, but it also covers these odd-looking specimens whilst keeping faith with the Chancellor's statement in "The Three Doctors" (10.1) that Hartnell was the earliest model. (One supposed piece of evidence for these faces being the Doctor pre-TV is said to be the regeneration in 21.6,"The Caves of Androzani":". might regenerate, I don't know… it feels different this time.'This *could* be taken to mean that the eight "mystery" faces, plus the five broadcast Doctors, make up the allotted thirteen lives. This opens whole cans of worms, but may explain the Sixth Doctor's arrogance and self-doubt. He's actually the *Fourteenth* Doctor, and as a result he's hopelessly confused.)

3. Fakery. The Doctor's winning the contest all the time, and the faces seen on the display are figments of his imagination, dredged up out of his psyche in order to fool Morbius. A reasonable explanation, this one, but ultimately disappointing. It was popular in certain drab sectors of fandom during the late '80s and early '90s, before a much more complicated theory turned up…

4. It's neither the Doctor nor Morbius, but some other Time Lord.This has been most clearly stated in the last-but-one novel in Virgin's New Adventures line (or at least, the last-but-one New Adventure which actually had the Doctor in it), *Lungbarrow*. Since this was a reworking of Marc Platt's unfilmed "Lungbarrow" script from the late '80s, and since this was one of the key texts of the so-called "Cartmel Masterplan" (see 25.3, "Silver Nemesis"for more), it has to be taken seriously. Not that everybody *wants* to take it seriously; there's a school of thought that *Lungbarrow* is one of the most unbearably fannish things ever written. But then, it was the near-conclusion of a six-year-long novel line which took an approach to the *Doctor Who* mythology quite unlike that of the TV series, and in context it didn't seem so unreasonable. However, if

you *aren't* the kind of reader who can proudly boast "even a sponge has more of a life than I"then look away now:

Back on ancient Gallifrey, Rassilon and Omega had a mysterious collaborator called "the Other" whose origins were unknown (mysteries behind mysteries, etc) and who disappeared from Time Lord history when regeneration replaced the ability to reproduce. He told his granddaughter that he'd eventually return, then threw himself into a Loom, which is where new Gallfreyans are 'spun'. Millions of years later, bits of his identity resurfaced in a no-mark called Theta Sigma, who unexpectedly became a Time Lord and found that age-old technology - like the Hand of Omega (see 25.1, 'Remembrance of the Daleks") - "recognised" him. This enabled him to nick an old TARDIS and revisit the Old Times, where the Other's granddaughter Susan took advantage of his befuddled state and left with him to explore the universe. The Doctor, for it was he, forgot all of this until mind-duelling with Morbius. Whereupon he suddenly recalled his earlier lives and started getting involved in Time Lord politics, ultimately becoming (all together now!) 'more than just a Time Lord'.

Well, you were warned.

5. Who they *really* were:

• George Gallaccio, production unit manager, later tipped to become producer of *Doctor Who* (and de facto producer of this story). Instead he worked on several high-profile drama series, notably the '80s *Miss Marple* adaptations.

• Robert Holmes, script editor and half of "Robin Bland".

• Graeme Harper, production assistant and later director of "The Caves of Androzani" (21.6) and "Revelation of the Daleks" (22.6).

• Douglas Camfield, director of the next story and tipped as either future producer or future Doctor. His face had appeared before, clean shaven back then, as the third possible Jamie in episode two of "The Mind Robber" (6.2). His version of the Doctor appears in the "flashback" sequences of BBC Books' thirty-fifth anniversary offering, *The Infinity Doctors.*

• Robert Banks Stewart, author of “Terror of the Zygons” (13.1) and the next story, “The Seeds of Doom? Later created the series *Shoestring* and *Bergerac*.

• Christopher Baker, production assistant.

• Philip Hinchcliffe, producer (we’ll assume you knew that by now).

• Christopher Barry, director of this story and several others from “The Daleks” (2.1) to “Robot” **(**12.1**).**

the seeds of doom 13.6

Is He Really a Doctor?

By this, we mean a medical practitioner. He has doctorates in other fields coming out of his ears, including titles he gained at St Cedd's (17.6, 'Shada"), Gallifrey (16.6,"The Armageddon Factor" with the strong hint that his thesis was on thermodynamics in 24.1, "Time and the Rani"), Glasgow (we'll come to that) and somewhere in Renaissance Italy, possibly Padua (various hints, notably 3.6, "The Massacre"). His knowledge of human anatomy is exemplary. He can diagnose injuries by tweaking an earlobe in "Remembrance of the Daleks"(25.1); he cures the Silurian plague in, of all places, "Doctor Who and the Silurians" (7.2); he heroically battles the common cold in The Ark" (3.7). In "Frontios" (21.3) he enthusiastically takes command of a field hospital and saves lives almost in spite of himself. Why, then, does he claim not to be a "real" doctor? We might assume that he just has very high standards, although in The Brain of Morbius" (13.5) he has to get Dr. Solon to examine Sarah's eyes instead of doing it himself. And he believes it when Solon lies about the diagnosis.

In "The Moonbase" (4.5), the Doctor claims to have sat for a medical degree in Glasgow in 1888 under Joseph Lister, who crafted the notion of 'sterile surgery"Yet this is impossible, according to the history we think we know. Lister had moved to London in 1877, to lecture at King's College Hospital, only leaving in 1893. The Doctor's reminiscence is couched in at least three 'I think's. Yet the Doctor's clearly been to Scotland several times in unrecorded adventures, can recognise "The Rowers Of The Fields" as a lament for the dead (13.1, "Terror of the Zygons"), knows his way around Aberdeen (15.5, "Underworld") and has picked up a couple of tartan scarves (as well as an accent from somewhere… 24.1, "Time and the Rani"et seq).

It's at least possible that the Doctor's medical training was at Edinburgh University under Joseph *Bell,* not Glasgow under Joseph

Lister. It takes seven years to qualify in medicine. If the Doctor was in Bell's class in 1888 then he might just have missed being there for the whole of the 1880s, perhaps only staying long enough to sit the exams. But even by the Doctor's standards, it seems odd that he could forget seven years spent cutting up corpses in Glasgow, or Edinburgh, or anywhere else.

Joseph Bell raises an interesting subsidiary question: Bell's most famous pupil, Arthur Conan-Doyle, has almost the same circle of friends as the Doctor. Harry Houdini (11.5,"Planet of the Spiders" and 12.5, "Revenge of the Cybermen"); the Prince of Wales / King Edward VII (the Doctor makes frequent references to *Belle Epoque* Paris - notably in 17.2,"City of Death" - and there's a direct reference in 7.4,"Inferno"); Sir Arthur Sullivan (1.3,"The Edge of Destruction"); H. G. Wells (13.3, "Pyramids of Mars", 15.1, "Horror of Fang Rock" and ultimately 22.5, "Timelash") and a whole lot more. If the Doctor knows all these people, then he must surely have bumped into Doyle, yet this is never mentioned. He doesn't even wince when Redvers Fenn-Cooper makes a disparaging remark about 'young Conan-Doyle' (26.2, "Ghost Light"). Either something happened which has affected his memory, or they had a blazing row.

Doyle's most famous falling-out was with Houdini, over the Cottingsley "fairies"; fans of the many remaindered films starring Paul McGann will know this as the basis for the film *Fairytale: A True Story* (1997), as well as the other one released in the same month, *Photographing Fairies.* Doyle believed in spiritualism and had been contacted by aTheosophist whose daughters had apparently taken photos of fairies. It was a silly joke that got out of hand, but Doyle had too much at stake to admit it. It was 1917, and people needed to believe in life-after-death and other worlds. Still, it seems too trivial a thing to make the Doctor pass up an excuse for a good name-drop. (For those who haven't already been informed… Joseph Bell, who could deduce vast amounts about his patients' lives from the tiniest details, is now thought to be the single greatest inspiration behind the character of Sherlock Holmes.)

So.We're left with an odd situation in which the Doctor knows all this human anatomy and medicine, yet can't remember learning it;

in which he knows all these famous people, but not the one individual who connects them. Something's clearly wrong with his recall, which may be why he refuses to practice human medicine, at least if there's an option.

Or, it may be more mundane than that: like all academics, he may just be proud of his title (understandable in his case, as it stands in for his name) and resent being classed as a "professional" In the UK, surgeons who've become consultants are addressed as "Mister" and look down on mere doctors. This dates back to the days when medicine was divided. Diagnosis was performed by priests who'd chosen to specialise - a university degree was a degree in theology, from which all other studies derived in the middle ages - and a matter of looking at star-charts or examining the colour of the patient's urine. Pharmacy was in the hands of herbalists, and surgery was done by barbers (or barber-surgeons, which is why barbershops have red and white stripy poles outside). A surgeon was a master-craftsman, trained in all uses of blades.The practice of medicine was some way below scholarship or divinity in the very oldest universities.The Doctor may simply be a mediaeval snob.

Or it might just be that he's sick of people asking him to look into their ears and take their temperatures.

Does the Universe Really Speak English?

In 1964, Terry Nation gave the world *The Dalek Pocket-Book And Space-Traveller's Guide,* featuring a short glossary of the Dalek language. Thus we learned that "Zerinza" was a wish for success, used as a farewell;"Galkor" meant "follow me, I am your guide"; "Clyffil" was a way of saying "I understand you but I do not agree with you" (very useful for humans, probably less so when talking to Daleks); and the letter J was forbidden, as it was so insulting.

The significant thing to say here, apart from *'what?,* is that this seems so wrong now but didn't then.Oddly, it's mainly American fans who wonder why aliens should speak proper English instead of mid-Atlantic like the ones on *Star Trek,* though aliens speaking American is actually less likely than the notion of aliens listening to the BBC (as British radio started before anyone else's). But the fact remains that the Doctor, and his companions, are capable of talking to just about everyone they meet.

There are three main theories to explain what's happening in this universe.The first, and simplest, is that all non-English dialogue is being translated. By whom, though? The Doctor is the most likely candidate, and in "The Masque of Mandragora" he suggests to Sarah that it's 'a Time Lord gift I allow you to share'. Many off-screen sources, including the New Adventures, expand on this by claiming that the translation process requires the TARDIS' presence rather than the Doctor himself. Needless to say, it's usually said to have something to do with the Ship's telepathic circuits.

Even those who don't bother with "non-canon" material tend to assume that the Doctor's pseudoexplanation in "Mandragora" in some way implies telepathy, despite the t-word never being used. If

the Ship's telepathic then it may be limited in the kinds of mind it can read, which would explain how it can translate the words of humanoids from far-off galaxies (e.g. 16.6, "The Armageddon Factor") but not the chitterings of the bipedal-but-otherwise-inhuman Foamasi (18.1, "The Leisure Hive") or the radiation-emissions of the Ambassadors (".. .of Death"7.3). But in certain stories, most notably "The Creature from the Pit" (17.3), the TARDIS crew speak the native lingo yet the locals can't always understand them if they use long and complicated words. This hints that rather than establishing a telepathic link between (say) Romana and Torvin, the translation process "plants"the language in a traveller's mind ahead of time.

If the process *does* involve the TARDIS, then it's at least feasible that the Ship uses a pre-programmed "bank" of languages instead of scanning the thoughts of those nearby. In which case it must be better-read than the Doctor himself, since he's often seen to communicate with cultures he's never even heard of. This might also help to explain why the Doctor's relationship with written language is so variable. Most signposts we see around the universe appear to be in English, and even the less-than-literate Leela can read numbers and letters without training (14.5, "The Robots of Death"), but occasionally the Doctor finds himself unable to interpret alien script (16.3, "The Stones of Blood"). In "Logopolis" (18.7) Adric can casually read English words, et states that the Doctor has been teaching him Earth numbers, perhaps hinting that something *does* translate written text automatically - within the limits of its knowledge - but that the Doctor wants Adric to do this by himself rather than relying on the easy option. The signs on the walls in "The Invisible Enemy" (15.2) use English lettering but "futuristic" spelling, which might mean that the automatic systems only kick in when absolutely necessary.

The other possibility is that reading a script requires the presence of a nearby mind who can read it already. The Doctor can't read Tibetan on Chloris (17.3, "The Creature From The Pit"), but might have been able to at Det-Set (5.2, "The Abominable Snowmen"). Significantly, in "The Stones of Blood" there are no living Diplosians around when the Doctor fails to interpret the seal on the prison ship. All of this chimes with the hints given in various

sources, notably episode two of “The Mysterious Planet” (23.1), that the entire *programme* is the product of the TARDIS’ telepathic “field” collecting information from more than just the Doctor’s point-of-view.

But if the TARDIS is at the root of all this, then people presumably lose the ability to talk to each other once it leaves.This assumption raises a number of tricky issues, which we’ll go into later.

Option #2 is that the aliens might all have learned our language. And obviously, being so advanced, they all talk like the BBC. This was the thinking behind the original Cyberman voices, when Roy Skelton delivered his lines in an androgynous, hybrid accent with the stress on the wrong syllables. It also explains how someone from Mondas picked up the phrase’a foregone conclusion’from Shakespeare’s *Othello.* Sil in “Vengeance on Varos” (22.2), the Foamasi cop in “The Leisure Hive” and the aforementioned Ambassadors all have obvious translator-gadgets, with flaws. The Lurmans in “Carnival of Monsters” (10.2) have special implants, and even the less-than-diplomatic Sontarans carry handy language-boxes around with them as part of their standard kit (11.1,“The Time Warrior”).

This option seems more plausible than “instant telepathic translation” if you bear in mind how often the Doctor speaks other Earth languages: Mandarin (14.6, “The Talons of Weng Chiang”), Hokkien (8.2, “The Mind of Evil”), Russian (26.3, “The Curse of Fenric”), German (6.6, “The War Games”) and Tibetan (11.6,“Planet of the Spiders”), to say nothing of Venusian. It’s feasible that he *might go* out of his way to learn other languages in order to improve his understanding of other cultures, even though he doesn’t really need to, but if he’s automatically translating everything unconsciously then the anomalies mount up. He doesn’t sing “La Donna I Mobile” in what we hear as English (mind you, he’s forgotten the words: 7.4, inferno”and 23.3,“Terror of the Vervoids”), nd he has difficulty understanding one of the thousand or so Australian Aboriginal languages (fortunately Tegan speaks it, in 19.2,“Four to Doomsday”).

The thing to notice here is that all species seem to have similar grammatical structures, the differences being in vocabulary. But the

idea of (for instance) “past” being different from “present” isn’t necessarily innate. The notion that there are universal constants, which is present in *Star Trek’s* universal translators, is out of keeping with *Doctor Who’s* world-view. Even in our world, the idea of warmth” is hard to convey in French. Bengali has difficulty with the pluperfect tense and the subjunctive mood. Japanese has no adjectives. If the current front-runner in the theory of language acquisition - Noam Chomsky’s “Deep Structure”- is correct, then the human ability to perceive a difference between “one” and “two” is part of the way we’ve developed languages. Grammar is brain-function, made manifest in the outside world. In that case, why should aliens have brains so like ours that their thoughts are translatable at all? For example, humans see things in binary oppositions: self-other, yes-no, inside-outside… would a species without lateral symmetry have this ability / limitation?

The convention in *Doctor Who* has been to assume that the degree of difference between an alien’s mental processes and our own is the degree to which Dick Mills or Brian Hodgson monkeyed around with their voices. This in turn assumes that sound is all there is to language, and we all know about the Delphons (7.1,“Spearhead From Space”), the aforementioned Ambassadors, or - if you like a looser canon - the people of Terserus (“The Curse of the Fatal Death”… see the appendix in Volume VI). If anything with a grammar and vocabulary that’s used to communicate is a language, then can the Doctor understand birdsong, BSL and bee-dances? Apparently not, or at least, not without doing things the hard way and actually learning them.

Perhaps the most significant thing about his ‘Time Lord gift’ is when he says it and why. Sarah has been hypnotised, and suddenly questions her ability to speak Italian. The fact that she asks is a clue to the Doctor that she’s not herself, which indicates that you’re not supposed to notice it but also establishes that it only applies to those under the Doctor’s “protection” If it’s associated with travelling in the TARDIS, then only TARDIS crewmembers can do it. If it’s proximity to the Doctor, then Steven, Vicki and anyone else left behind in a culture not their own might be in trouble. (3.9, “The Savages”,3.3,“The Myth Makers” As Ovid said, bar-barus hie ego sum quia non intelligor ulli’. No, you look it up.) As human

companions and aliens can talk even when the TARDIS briefly leaves the scene (e.g.'logopolis"), it's possible that its passengers "soak up" the ability to speak the local dialect on arrival, perhaps losing the knack after a while.

The main rival to Chomsky's theory was, at least when the programme started, Behaviourism. In this view of language, we imitate whatever's around when we're growing up. The traditional argument against this is that humans can make entirely new sentences which "work", reflecting a grammar outside the repertoire of all the sentences we've heard before. "Colourless green ideas sleep furiously" was Chomsky's example, whereas we might use "golly, aren't Pip and Jane Baker good".lf Behaviourism is right, then the odds against any other country - let alone species - developing human-style language unaided are astronomical.

Moreover, if the "telepathic translation" theory were to work then it'd require the Doctor to download the whole of everyone's lives, not just the rules and vocabulary of the local lingo. It looks like we're left with Chomsky's "Language Acquisition Device"which in the *Doctor Who* universe must be inside every intelligent being, and a few others. Syntax and grammar are, like being bipedal with a head on top, astonishingly common. Since we're led to believe that the Time Lords represent the oldest, cleverest and most influential of cultures, we might even be able to swallow the idea that the Time Lords in some way "pre-formatted" the universe to prejudice it towards English-style communication. (In which case, we might also assume that English is the closest match for Time Lord language on Earth, which could also explain the Doctor's propensity for hanging around in western Europe. Mind you, it's not *written* like English; see 14.3, "The Deadly Assassin".) The universe is full of humanoids, so it's at least possible that the universe is following the Time Lords' example. If it works for biology, then why not language, too?

Leading on from this, the third and most controversial theory is the least complicated. Everyone speaks English unless otherwise stated. The language and vocabulary, ccents and semiology, spellings and punctuation of Britain 1963-89 are cosmic and eternal. Whilst seemingly unlikely, it solves problems like the Master's message to

the peoples of the universe in “Logopolis” and the moment in “The Two Doctors” (22.4) when Peri points out that she doesn’t speak Spanish, and the Doctor - referring to the aliens - replies:‘That’s all right, neither do they.’

Of course, a possible solution is to assume that what we’re seeing is a dramatic reconstruction of the “true” history of the *Doctor Who* universe with all the anomalies resolved, but that’s another essay (again, see 23.1, “The Mysterious Planet”). However, if we take the “telepathic translation” theory as the default explanation, then it could explain why we so rarely see really *alien* aliens. Our perceptions are limited by the boundaries of our language. If aliens exist beyond our usual frame of reference, then we may not even be able to “see” them fully, let alone talk to them.

the deadly assassin 14.3

Did Rassilon Know Omega?

Or:“One Black Hole or Two?”

In “The Three Doctors” (10.1) we learn that long, long ago a great engineer called Omega journeyed into a black hole and never returned, but through his efforts made Time Lord civilisation possible. In “The Deadly Assassin” we learn that long, long ago a great engineer called Rassilon journeyed into a black hole but *did* return, and through his efforts made Time Lord civilisation possible.You can see the problem here.

As we’ve already established,“continuity” didn’t exist in the 1970s, at least not in the modern, post-home-video sense of the word. Throughout *Doctor Who* there are running themes, ongoing concerns and recurring images. Many of the people who wrote it had read the same literature, or been introduced to it by hard-hearted script editors. So there’s a sense of the programme holding together, but… nobody ever went back to check the details. Did Robert Holmes even remember “The Three Doctors” when he wrote “The Deadly Assassin”? He certainly got the “black hole” bit right, but the Heroes of Ancient Gallifrey don’t match.

Everybody born after a certain date (and extensive research hasn’t yet confirmed what this date is) makes the same assumption: that Omega and Rassilon were contemporaries, that Rassilon finished the work Omega started, and that at some point they must surely have collaborated. Yet this is never stated anywhere in the series.

Rather, t’s a view which started to become”con-crete’in the minds of fans in the early‘80s, largely thanks to *Doctor Who Magazine*. When a confused reader wrote into *DWM’*s “Matrix Data Bank” column, and asked for an explanation as to how Omega and Rassilon could both have the same sort of mythic status in Time Lord history, the reply seemed reasonable. Omega was the hands-on

engineer, whereas Rassilon was more of an aristocratic, organising-principle type.

The same sort of view was taken by the back-up comic-strips in the magazine, notably those written by Alan Moore, which were thoroughly great ‘•nd which proved to be at least as influential to ’re growing generation of fans as the TV series tself Anyone who followed the progress of the *Doctor Who* novels throughout the 1990s can wainly see that the writers had grown up on stories like Moore’s “4-D War” (*Cat’s Cradle: Time’s Crucible and Alien Bodies* are the two most blatant examples). These comic-strips were also an influence on the last few decent writers to work on the series in the late ’80s. Ben Aaronovitch’s script for “Remembrance of the Daleks”is clearly written by someone who thinks that Rassilon and Omega worked together, though it’s never explicitly stated. The Target novelisation of the story - the book which pretty much set both the style and the back-story for the entire New Adventures line - *did* explicitly state it, and then some. All pro-level fan-fiction since has agreed.

So, despite the lack of water-tight evidence onscreen, the case for Rassilon and Omega knowing each other seems “proved” in the minds of… well, many.The majority, even. But it wasn’t always that way. Some will tell you that if you were growing up with the stories in the‘70s, then you might - *might* - have taken a different view. The alternative version sees Rassilon and Omega as being separated by generations, and it isn’t even clear which of them came first.

There are inconsistencies, no doubt about it. For example: the Aaronovitch version of the story assumes that Omega’s black hole and Rassilon’s black hole are one and the same. But this seems odd at best, impossible at worst. “The Deadly Assassin” says that Rassilon went into his black hole and removed its ‘nucleus’, returning it to Gallifrey and turning it into the Eye of Harmony. This nucleus, and not the hole itself, is what holds together the whole of Time Lord culture (whether they know about it or not). What’s this ‘nucleus’? Well… if you’re going to be scientific about it, then it can only be the black hole’s singularity. After all, everyone in the ’70s had read the same kind of source material, so a singularity is almost certainly what Robert Holmes had in mind. But

in “The Three Doctors” the singularity of Omega’s black hole is still there. It *can’t* be the same nucleus, unless Omega’s spent the last few millennia stuck inside the Eye of Harmony, which is silly.

The obvious conclusion might be that Omega spearheaded the making-black-holes process, but that Rassilon perfected it and retrieved the nucleus from *another* hole, yet the time-scale doesn’t seem right. In “The Invasion of Time” (15.6) it’s established that Rassilon lived ‘aeons’ ago, and from “The Ultimate Foe” (23.4) we might assume that a figure of 10,000,000 years seems like a good estimate. But Omega believes he’s only been trapped in *his* black hole for ‘many thousands’ of years. Is he understating, in spite of his big melodramatic voice? Does time really pass *that* differently for him, inside his realm? Or is he just insane?

Well, maybe. “Remembrance” is quite clear on the matter, stating that Omega ‘left behind him’ the science on which Rassilon founded Time Lord society. It might also be considered odd that Omega knows of the Time Lords and once sat on the High Council, though this might just indicate that the Gallifreyan elite called themselves Time Lords even before they had absolute control over time.

So. Here are the options.

1. The voice of the ’90s. Omega and Rassilon knew each other, and there’s only one black hole. Omega created it, and Rassilon later removed its nucleus to make the Eye of Harmony.This nucleus is *not* the singularity. It’s something else entirely, quite possibly something only comprehensible within the framework of Time Lord physics. (After all, much of the Gallifreyan technology which drives the series is either incomprehensible or simply never explained, and for all we know there’s some *other* factor involved in black holes which humanity just hasn’t noticed yet.)

So the rest of the hole, with its singularity intact, was still around by the time of “The Three Doctors” and ready to go supernova. Though this is a cop-out in scientific terms, it *does* make sense in terms of *Doctor Who* after the ’70s. Pop-science ceases to be the inspiration behind ancient Time Lord history from “State of Decay” onwards (18.4), and later stories are more concerned with sweeping, mythic confrontations than with technicalities.The idea

that the nucleus is an undefined, indefinable quality of a black hole is perfectly in keeping with the style of"Remembrance of the Daleks", nd with the style of most of the subsequent New Adventures, even if it jars with *Doctor Who* in 1976. This solution is aesthetically the neatest even if it's physically the most dubious. One hole, no problems.

2. The voice of the '80s. Omega and Rassilon knew each other, but it's not necessarily the same black hole. "Remembrance of the Daleks" is the definitive source, in this model of things. As the Doctor explicitly says, Omega came first. Rassilon built on what his "friend" pioneered (although there's a lurking suggestion, especially in the novation, that Rassilon deliberately set Omega up). It's possible that Rassilon engineered a second black hole, and did what Omega couldn't by coming back, hence the line about the Sash of Rassilon preventing its wearer from being sucked into a parallel universe. Alternatively Rassilon's hole may indeed have been the primal one from the beginning of time - see the third theory - and Omega's black hole simply provided an energy source which in some way allowed Rassilon to install the Eye of Harmony on Gallifrey. Either way, the continuity is satisfied. Omega's belief that he's been in his realm for'many thousands'of years can easily be put down to insanity, time-distortion effects or dramatics, the latter being most likely as he *does* have a liking for flowery language. Besides, it's no worse than any other dating error ever made by a *Doctor Who* character.

3.The voice of the'70s. Omega and Rassilon didn't know each other, or at least, they weren't con-temporaries.The science is key. Physics c. 1976 dictates that a black hole can be used as a navigational device for time-travel, but that the traveller can't go back further than the point of the time machine's construction.

Robert Holmes, who was already researching this stuff and planned to use it in "The Sun Makers" (15.4), was aware of that. But as has been explained in the Why All These Black Holes? essay, there may have been a singularity left over from the Big Bang. Rassilon's voyage could have been a mission to find and convert this singularity; to take a naturally-occurring temporal anomaly and bring it back to his own world in a handy wardrobe-sized form,

giving his people unlimited access to time. To do this, he'd need energy. So Omega's black hole was used as a power-source.

The most sensible way for the two Great Gallifreyans to have met is for Rassilon to have travelled back to Omega's time, which explains why Omega in "The Three Doctors" and "Arc of Infinity"(20.1) knows so much about the workings of Time Lord society. Rassilon may even have brought Omega back to his own era, and as Omega's been close to a temporal anomaly, his 'thousands' of years may be aeons in the outside universe. If you like things good and Biblical, then this has a lot of appeal. Omega - as the fallen angel - has to exist at the start of Time Lord history, ruling in "Hell" rather than serving in 'Heaven'; Rassilon - as the pioneer, lawgiver and patriarch -leads his people to "the promised land"

Even apart from the obvious generation gap, which of these options you consider to be the most rational really depends on the kind of "rational"you're looking for.

One final point here. In both "The Three Doctors" and "The Deadly Assassin", the ancient-Time-Lord-in-question is presented as an iconic figure, but neither Omega nor Rassilon is considered to be of great importance to modern Gallifrey. Rassilon *isn't* treated as the great demi-urge of Time Lord civilisation in "Assassin"; Co-Ordinator Engin believes that very few people care about the Old Time. Symbolically, at this stage Omega and Rassilon might as well be one and the same, even if one got out of the hole and the other didn't. In a way it's a pity that both of them had to turn up on our screens, in person, in 1983. Up until then the writers could justifiably have claimed that they were two different names for the same individual, and that the Time Lords had just got their history a bit muddled.

the face of evil 14.4

Is This Really an SF Series?

With every year that passes, this question seems increasingly stupid, at least to the majority of the population. Of course it's SF; ou can clearly see the actors in alien costumes. Circa 2004, it's routinely assumed that anything with a special effect is watched by the same people who watch anything else with a special effect. There was a point in the 1990s when the media became quite convinced that only teenage computer-nerds had watched *Doctor Who,* and that it naturally belonged in the same category as *Star Trek: Voyager.* The most obvious sign of this was the 1996TV Movie, which had precisely nothing to do with the "target audience" of the original series and everything to do with trying to generate an instant single-demographic following. The BBC's decision to show the new, 2005 series at Saturday tea-time thankfully breaks most modern scheduling rules, but even so, the question we're asking here is one that most people simply wouldn't consider any more. Ignoring the marketing… ignoring the phrase "sci-fi" as in "sci-fi blockbuster"… ignoring the increasing use of"science fiction"as a synonym for"computer-generated"… is this really, m any meaningful way, an SF series?

On the one hand, we have a system of icons, of second-hand symbols like the aforementioned spaceships and robots.These can be inserted into stories, but the stories aren't "about" them. Most other symbol-systems are recognisable genres of fiction (westerns have cowboys, Indians, saloons, gunfights…). A genre is, if you want to think of it this way, a category that can be marketed by content and style. But if we try to define a genre called 'science fiction" then we run into problems straight away. Is everything with a spaceship in it part of the genre? *Apollo 13* was a historical drama. Do all science fiction stories have spaceships? Obviously not. The lower end of the Hollywood gene-pool seems to think that you can Put robots / monsters / Will Smith into any project and people will automatically accept that there are no rules. Does this work? Let's

not dignify that with an answer.

Another possible way of defining SF involves looking at themes, at what the story aims to examine. A lot of people have spent a lot of time trying to do this. Novelist / short story writer Theodore Sturgeon defined a science fiction story as "a human Problem, and a human solution, which would not have happened at all without its speculative scientific content" which at least remember to bring *people* into things but which also comes uncomfortably close to reducing the whole thing to a series of social crossword puzzles. Maybe we should keep this in mind, but as a minimum requirement, not an absolute limit. If you can avoid the trap of trying to find a definition which suits *every* work of SF, and instead concentrate on finding a definition that strikes at the heart of what SF is generally *getting at,* then it'd be more useful to think of it this way: science fiction is about the relationship between humanity and its tools. It exists in the gap between human beings and the things they make, and the things they make happen. No wonder robots have become the definitive SF "accessory" They're us *and* our tools at the same time.

Brian Aldiss'famous claim that *Frankenstein* was the first true work of SF has been roundly attacked in recent years, most notably by Samuel R. Delany and Damien Broderick, but Aldiss was onto something even if he wasn't technically accurate. *Frankenstein* was the crucible, the great public arena, for a style of fiction in which people externalise themselves through technology.Though it's popularly seen as a story about scientific experiments going monstrously wrong, it's really a story about great forces being squeezed into human spaces, so that they become personal and manip-ulable. The force of life ceases to be part of the great cosmic plan and is put into the hands of an individual; the power of nature is concentrated into a single body; human experience is compressed into one lashed-together lifetime, which promptly explodes. (The most famous film version makes this visual by showing us lightning being forced down a spire and into *Frankenstein's* lab, whereas the book just makes sure that the monster comes to life at the heart of a rainstorm.) And Frankenstein's love-child within *Doctor Who,* "The Brain of Morbius" (13.5), follows the same logic by putting the fate of the galaxy in the hands of Mehendri Solon… a man who can

change the course of history not because he's got a fleet of battleships or Sutekh-like psychic powers, but because he can use the instruments of science to perform a single operation.

If you take *this* view, then the oft-repeated claim that SF is about "the impact of technology on humans" isn't far off the mark, but misses the point. (The "impact"definition would automatically qualify *Tess of the d'Urbervilles* and most episodes of *Columbo* as SF, but then, when you think about it… *Tess of the d'Urbervilles* and *Columbo* really *do* seem closer to the nature of "proper" SF than, say, one of the many "Regular Character Confronts a Member of His or Her Family and Resolves His or Her Personal Issues" episodes of *Star Trek*. *Tess* touches on the effects of machinery on rural civilisation, the way Darwin changed the shape of the world and the nature of humanity in an age that was coming to terms with entropy. *Columbo's* simpler, but frequently features characters who use new technological systems to commit ingenious murders. Both of these are a lot nearer the mark than a soap opera which just happens to be set on a spaceship.)

In this philosophy, *Doctor Who* is palpably SF because the human / tool relationship is key to virtually every part of its mythos.The very first story contrasts Ian and Barbara's amazement at the TARDIS - and, specifically, at the idea that anybody could build such a thing - with the plight of a bunch of cavemen who are desperately trying to re-invent fire. Five years later,*2001: A Space Odyssey* would pull off the same trick in a single scene by juxtaposing the development of the first monkey-weapon with the sight of a shuttle heading for the moon. The body / technology theme of "The Daleks" (1.2) is so obvious that it's not even worth mentioning. And significantly, the further *Doctor Who* gets away from this theme, the less like SF it seems.

If you want to divide up "SF" and "fantasy" then oneway of doing it is to say that "fantasy" is about humanity's relationship with its symbols rather than its tools… though symbols are tools too, so you can see why there's an overlap, and in itself this is a very big argument. Even so, a story like "Pyramids of Mars" (13.3) feels more like fantasy than SF largely because the tools of the Osirians are props and side-issues rather than the point of the tale.Take

away all his toys, and Sutekh is still a temigod, because his power is in signs and portents rather than in the things he holds. Why does a story like “State of Decay” (18.4) feel like such a precise balance of styles, so much so that the term “science fantasy” seems made for it? It’s not hard to see.The Giant Vampire is presented as a primal, inexplicable symbol of terror, but the Doctor can kill it because he knows how to manipulate the controls of a spaceship, well enough to drive this colossal artefact through the creature’s heart.

But even *this* definition may be too focused on the details. It certainly doesn’t cover *everything.* In the late 70s any number of American academics tried to make their studies”relevant”by publishing books on SF, but only a handful seem to have been written by people who’d read any. Those conclusions which *are* useful can be summarised as follows: “science fiction is what people who read science fiction read” or more interestingly, “science fiction is *how* people who read science fiction read”

So forget genre and go beyond theme. Perhaps what we should be looking at is *mode.* Any form of communication, whether newspapers, ilms or finger-painting, needs to be interpreted to make sense. We interpret according to habits, probabilities and inferences. Usually we’re cued to use a specific set of rules for the particular “game” we’re playing with the text. We look at cartoons in a different way to the way we watch the news (although head-trauma patients can temporarily lose this distinction, and laugh at the earnestness of the delivery juxtaposed against the “slapstick” of car-crashes and scandals). If we treat SF as a mode rather than a genre then we’re finally getting somewhere. We measure the world in the fiction against the world we know, and balance the ways we know about those worlds against one another. The “science” part lies in us forming a hypothesis about what’s going on, and re-evaluating it as new evidence emerges. We’re experimenting with other environments. SF is a game where the object is to figure out the rules.

In which case the SF-ness of a story isn’t a matter of content - although this can act as evidence -but the logic connecting what we see. Historically, virtually every story in the black-and-white era of *Doctor Who* began with the TARDIS arriving somewhere and the

Doctor's party trying to work out where they were and what was happening.This is the thought-process of all SF audiences, even if the characters in the story already know most of the details.The word "protagonist" is usually used to mean "hero" but actually it means "someone who doesn't know all the answers in the same way that the audience doesn't" true in all fiction but never more pronounced than in SF. The British public learned to play along with the game with increasing competence, and this process got faster with each year. As *Doctor Who* was always about exploration, empiricism and surprise, this is only natural. You can only be surprised if you think you know what's coming.

In the 1970s, ll the script editors and producers at least knew the basics of written, "literary" SF. And if they didn't to start off with, then Robert Holmes made sure they learned quickly. Whilst the product"coming out of Hollywood in the late 70s exploited the visual *frisson* of monsters, spaceships and cosmic phenomena (consider Disney's *The Black Hole,* in which said black hole is purple and seems to lead to Heaven), *Doctor Who* writers were encouraged to place the SF-ness at the level of the sentence or the shot, not use it as a way of making things look good. Even an apparent"graft" ofSF icons onto a pre-existing story - such as "The Androids of Tara" (16.4), basically *The Prisoner of lenda* with robots and BBC-issue lightsabers -develops a "back-story" to account for this, which then in turn allows fresh plot-developments and a chance to check out a whole society's attitudes.

The paradox is that the obvious public benchmark for "sci-fi" *Star Trek,* became less like SF as it went on; we've already hinted at this in **How Good Do the Effects Have to Be?** under 10.2, "Carnival of Monsters" As a series set in an increasingly "known" world, establishing shots of regular locations (mostly spaceships and space-stations) became normalising, like the establishing shots of the precinct building in *Starsky and Hutch* or *Cheers* in, um, *Cheers.* Rather than unsettling our preconceptions, they asserted a sense of business-as-usuai. For the most part, *Doctor Who* never really had anything like this, at least not until the disturbingly homely and sit-com like "Doctor and K9 lounging around in the console room" sequences became so prevalent in Season Seventeen. Each story is its own world. Even in the Earth-bound, often-dreary UNIT era of

the early‘70s, he ground-rules of each story require the previous six episodes to be forgotten quick-smart.

We, as viewers, made *Doctor Who* SF. Not the effects teams or the script-writers. If we chose not to “play” then it became space-opera in those stories with the iconography of space-opera, gothic in those stories with the iconography of gothic, pop art in the early‘60s, action-TV in the UNIT days and kitsch in the late ’80s.

the robots of death 14.5

Cultural Primer #1: Why Top of the Pops?

Throughout this book we've often had to provide footnotes explaining the subtleties of British popular culture 1963-89, and take it from us that you don't realise just how strange it all was until you have to describe it. Because, as you must have gathered by now, *Doctor Who* was part of the I British consciousness and had "blood-ties" to a lot ofthe country's other national treasures. You *can't* tell its story without making reference to *Top ofthe Pops,* or *Blue Peter,* or the *Radio Times,* or… well, any of the other things that keep cropping up in these volumes. In part, we're describing these peculiar cultural phenomena for the sake of all those "colonials" out there. But in part we're doing it for those who might have been born after 1980, because although many of these things still exist in modern Britain, they don't necessarily mean anything.

Oh yes, children; unbelievable as it may seem in these days of ringtones and txt-interactive music TV, there was a time when *Top of the Pops* was something you actually *looked forward* to.

Contrary to popular belief, the BBC hierarchy was always rather keen on youth culture. Forty years ago Rock and Roll had an image problem that made advertisers wary, so the commercial stations didn't dare touch it. And demographical-ly, the BBC's job as a public service broadcaster meant that it had to appeal to the young. What the programme-makers *couldn't* do was be seen to promote or advertise records as products. They could report on what these newfangled "teenagers" were getting up to, or on managers manipulating innocent consumers, and they could make *party"-style programmes 'just for you!' in which such music could be one element among many. But the first really successful attempt at getting a whole family to watch a pop programme was *Juke* Box *Jury.* Grumpy parents had opinions too, and guessing how bad a

record had to be to sell by the bucketload became a weekly ritual on Saturdays.

Then London-based commercial station Associated Rediffusion hit on a brilliantly simple formula: turn a studio into a discotheque, draft in live acts and show it on Fridays. The title *Ready, Steady, Go!* and the slogan 'The Weekend Starts iforel'are now part of folklore. The BBC saw this, and pondered how best to respond. The answer was simple. Ready, Steady, Go! was trying to Manipulate public taste. (And sometimes it did so astonishingly successfully. Acts from America, Specially Stax and Tamla Motown groups facing colour-bars back home, were household names in Britain and caught on in the States after UK success. Endorsement by the Beatles helped, too…) The BBC being the BBC, it realised that its purpose was to reflect the mood of the nation, not control it.

Top ofthe Pops was launched on New Year's Day, 1964, mere weeks after *Doctor Who's* debut. Its first presenter was the man who invented the discotheque, Jimmy Savile. He's something of a national joke now, but in the late 1940s he'd had the notion of linking up two turntables to a PA system, and charging people to come in and dance to mixes of records instead of a live band. (He even had to pay musicians to sit around as if taking a breather, in case Musicians' Union officials came calling.) His idiosyncratic style of delivery and singular appearance made him the "face"of the series for the first fifteen years. In "The War Machines" (3.10), one resident of Swinging London compares the Doctor to Savile; American readers might want to imagine William Hartnell presenting *Soul Train,* if it helps set the tone. *Top of the Pops* was an instant hit, at a point in time when British music was rampantly successful, but the programme was bigger than any act or presenter. There were three main reasons for this:

1. It was shown on Thursday nights. Friday mornings across the country saw schoolmates, work-colleagues and the press discussing what they'd seen and heard the night before. Sometimes this discussion was along the lines of "what was she wearing?" In the early 70s it was occasionally "were they actually wearing anything?", and by the early '80s it was "what… so Boy George is a man?? Living on a small island with a big population and only two

networks, the chances were that everyone you knew had watched the same thing.This put *TotP* into a select band of "event" programmes, like *Blue Peter* and *Doctor Who* itself. People ritually tuned in to see what would happen, rather than because of any specific group.

2. It was entirely governed by single sales the previous week. However ghastly or wonderful or erratic a week's selection was, the public was to blame. If something "odd" charted, it had to be shown. Punk rock would have been a three-week fad without *Top of the Pops.* This meant that the turnover of fashions and cults was faster, and the pace of popular culture in general was faster in the UK than anywhere else.This wasn't solely the work of *TotP,* but the programme was like the canaries that used to be taken down into coal-mines. It reacted first. The sense that our time was somehow special, and that Britain was privileged, was borne out every Thursday. When Vicki tunes the time-space visualiser to next week in "The Chase" (2.8), to catch the Beatles performing "Ticket To Ride" it makes absolute sense whilst still being a joke. Later on it would seem just as right and proper that early 70s London should be the prime invasion target for every evil intelligence in the cosmos.

3. Most importantly, for our purposes, the aesthetic of the programme was geared towards this sense of immediacy and public "conspiracy" As we've already seen (**How Good Do The Effects Have To Be?** under 10.2, "Carnival of Monsters"), the electronic effects of Doctor Who were essentially trial-runs for those of *TotP*. From 1964 to 1982, the *TotP* sets were explicitly television studios turned into zones of pop-art. The emphasis on "spectacle" and the idea of creating an area where the rules of television narrative are suspended for half an hour, feeds directly into *Doctor Who.* "Tomb of the Cybermen" (5.1) provides a dear example. The "logo" and graphics inside the tomb are remarkably similar to the kind of sets where Tom Jones or Manfred Mann might have performed that summer. The polarised-light projection used to hypnotise Hayden is the one that turned up in the background when Lulu sang "Love Loves to Love Love".The cyber-hypnotic signals toToberman are the same sine-wave oscilloscope traces used for "A Whiter Shade of Pale" by Procul Harem (whose organist wore the same cape…).

TotP had always been keen to integrate the performers into an overall visual style for each edition, much as the *Doctor Who* method of making worlds out of signs and suggestions had worked over a longer narrative.

We could go through the whole history of both programmes listing examples of the way they bleed into each other, but perhaps the most interesting is “The Robots of Death” as one sequence combines an effect that *Top of the Pops* stopped using when Glam Rock fizzled out in 1974 (Dask’s face in degraded false-colour as he reprograms SV7, just like Marc Bolan or Roxy Music) and the one which became a *TotP* house-style when the New Wave made way for Ska around 1979 (“computerised” lettering moving around on the screen, much more disorientating then than it seems now). Watch it these days and you can’t believe that nobody realised the “blurry” face was Dask’s, but at the time most people were too busy trying to read the letters to look too closely.

the talons of weng-chiang 14.6

Bad Effects: What are the Highlights?

In the public imagination, this - more than anything else - is what *Doctor Who* was remembered for throughout the ’80s and ’90s. Thanks to the constant jibes from a cynical,“knowing” media, the most common memory outside fandom was of ‘squeezy-bottle spaceships” though only “The Ark in Space” (12.2) offers anything that *literally* looks like a Fairy Liquid container in orbit. But we’re going to have to define terms here. There are lots of slightly ropey effects, endless questionable set decisions and any number of dodgy alien costumes (the latter will get their own listing under 21.1, “Warriors of the Deep” for fairly obvious reasons). But what we’re talking about here are effects so inept that they define an entire production, not just “spoiling the illusion” but actively distorting everything around them.

Here are the front-runners…

10. Non-Zap Guns. Just for a change, directors occasionally used “realistic” weapons. Often these were pistols or submachine guns firing blanks. There’s a problem with this in a TV studio, as the shock-waves make what are called ‘Venetian blind” effects on the picture (e.g. 13.6, “The Seeds of Doom” and 21.6, “The Caves of Androzani”). Alternatively a small charge in the nozzle would make a bang and a flash, with no need for faffing about in post-production. When the Cybermen did it (12.5, “Revenge of the Cybermen”), it was pretty good. When Morgaine’s troops did it (26.1, ‘Battlefield”), it wasn’t. What with the bizarre ‘Knights falling from the sky” effect, the disco music and the Knight Commander’s lipstick and eyeliner, this makes the whole story feel like the video for “Ant Rap” by Adam and the Ants.

9- The Bandril Ambassador (22.5, “Timelash”). “The

ambassador's receptions were noted in society for his exquisite taste and amusingly-shaped head."Tragically, although it is a fairly bad effect by absolute standards, it's the best in the story. Sometimes you can get away with a slightly suspect effect if it's (a) quick and (b) responded to by the actors as if it's real.This is why giant rat from "Weng-Chiang" isn't in this listing, s the costume worn by Stuart Fell isn't *too* catastrophic, ust a bit too clean (although the cuts between the costume and the real rat in the scaled-down sewer don't do it any favours). The Bandril Ambassador is a glove-puppet that appears on a 3D "screen" threatening to declare war on the Karfelons and later announcing the Doctor's death. In still photos it's actually quite good, and well-lit. We have no sense of scale, so the Bandrils might be fifty feet high for all we know. But the story lost all our sympathy seventy minutes earlier, and the script, costumes, sets and one or two pantomime performances (naming no names, but he was in *Blake's 7)* all remove any reason to take the rubber Sooty at all seriously.

8. Spiders (11.6,"Planet of the Spiders"; 14.3, "The Deadly Assassin"; 18.3 "Full Circle"). The BBC had a directive about phobias. Every time someone built a convincing prop spider, an edict came down to make it less "scary? As a result, "Boris" from "Planet of the Spiders" was built to be almost cute, and the one that bites Romana and injects her with Marshman-juice in "Full Circle" was remade three times to look pretty-but-unrealistic. As an aside, the only genuine arachnophobe involved in the programme - Colin Baker - had it stipulated in his contract that no spiders were to appear while he was the Doctor. Imagine how much worse "The Mark of the Rani" could have been (see number two).

7. Kroll (16.5, "The Power of Kroll"). The model-work is the best stop-motion animation in the programme's history.The reactions of the cast are convincing. What's wrong is that these elements don't match; there's a crude split-screen, meaning that Kroll's tentacles are cut off below a certain point. The prop tentacle in the studio isn't altogether believable either, although everyone does their best to be appalled by it.The ingenious part is that the first tentacle we see, which causes Romana to scream her lungs out at the end of episode one, is actually a *deliberately* unconvincing rubber prop being wielded by a Swampie high priest. Some might say that a

“dummy” monster only works if you can be absolutely sure that the real one’s going to blow people’s socks off…

6. The Skarasen (13.1, “Terror of the Zygons”). A story about the Loch Ness Monster requires, well, a sea serpent. For the most part what we get is a tolerable stop-motion beastie, but when episode four rolls by they try to make do with a sock-puppet stuck over CSO footage of Westminster.The bathos of the script’s move from spooky chiller to “I’ve planted my monster-summoning device and now I’ll take over the world, nyah-hah-haaah!“is mirrored all too clearly in the sudden decline in the quality of the effects… and in the fact that Baker, Sladen and Marter are all looking in *completely* the wrong direction.

5.The Cyber-Fleet/s (4.2,“The Tenth Planet”; 4.6, **“The Moonbase”;** 6.3, **“The Invasion”).** By and large the spaceships of the 1960s are exemplary, and in some cases more interesting than the sort of thing you see today (the existing footage of “The Dalek Masterplan”3.4, is more inventive than most CGI even if it’s wonkier).They knew their limits, nd never tried to go too far beyond them.This is, however, not the case when Kit Pedler and Gerry Davis are writing. We’ll start with “The Moonbase” as this is the quintessential “paper-plates-on-string” invasion fleet. The models were shot on the same set as the exteriors of the moon, with no regard for scale. So a crater we’ve already seen filled with astronauts and nonchalant Cybermen crops up again, within the same instalment, as a crater fifty times bigger. Result: the punters at home can tell at a glance that the wobbly, dangly spaceships are the size of pizzas.Their earlier vessels were similarly maladroit, but at least avoided the”flying saucer”design; hey looked like spacefaring casserole pots instead.

By “Tomb of the Cybermen” (5.1) the writers have learned their lesson and avoid any ships in flight, although one really duff model is used at the start. “The Wheel In Space” (5.7) returns us to halfway-decent model-work, and it’s the other bodies in space - notably the Morris-Dancing Cybermen - that wreck it (well, that and the script). In their last “classic” story the Cybermen travel in fairly impressive-looking ships, but these are manoeuvred through space by a very obvious early example of motion-control, i.e. plonking

them on a table and moving the camera instead, this wouldn't be so bad, except that it's the only exempt at"realism" amid an epic-length montage of stock-footage missile-launches, some dating back to the 1930s.

4. Zap Guns (various stories of the late '70s and early '80s). There came a time when the presence of "blasters" became a standard feature of the programme's narrative, which is why this present volume is fast running out of ways of saying "they carry guns that can either stun or kill". There are a few laser-effects here and there in the Pertwee stories, but not enough to be taken for granted or left unexplained. In "The Ark in Space" (12.2) the Doctor's comment 'I hate stun-guns' is a surprise, because we've not seen him stunned that often. Up to this point there were two ways of doing a ray-gun effect. Either you distorted the whole picture (as with the early Dalek "exterminations" that make their victims go into negative, and the curious image-squelching that accompanies a blast from the Ice Warriors' sonic weapons), or there's a localised effect on the victim but nothing from the barrel of the gun itself (like the "star" pattern of a Gallifreyan staser, and the smouldering of anyone at whom the Cybermen point their lightbulbs).

But after *Star Trek,* and with the BBC hierarchy deciding to try to do *Star Wars,* suddenly guns made beams. And beams have to point in the direction of the target. K9 would aim his nose-gun at a wall, a small flame would erupt and a beam would go off six or seven inches away. Someone would be shot - Della in "Nightmare of Eden"

(17.4), let's say - and clutch her stomach as the ray gets her in the neck. As we shall see, with K9's arrival human anatomy is rewritten, and the kneecap becomes the place to aim lethal blows. The writers get wise to this pretty quickly, and either start specifying that a large, vague area is affected or simply don't use guns at all. Part of the reason that everyone went hog-wild for "Earthshock" in 1982 (19.5) was that we finally had gun-battles where everyone could shoot straight.

3. Bok (8.5,"The Daemons"). The evil gargoyle is pretty obviously either a polystyrene model or a little bloke in a body-stocking. Nothing intrinsically wrong there, but the model moves like a stone

gargoyle come to life - with glowing eyes, too -and the other one moves like a little bloke in a body-stocking. It zaps people by adopting a hood-ornament pose and waiting until someone edits the offending puny mortal out of the picture, meaning that some actors have to spend ages in ungainly postures waiting to be pointed at. The gargoyle can also fly.This is something few people realise the first time they watch this story, as it's only signified by a "whooshing" noise like a fat man in corduroy trousers walking fast, and by Roger Delgado looking skywards (which he does a lot anyway). The contempt for the audience is continued when it"dies"in two separate positions, the model crouching and Stanley Mason sitting cross-legged on the floor. The final insult is when he's bazooka'd.The model which explodes is obviously polystyrene, as all the pieces are caught by the lightest of breezes and blow away the way limestone doesn't. The effects got a letter in the *Radio Times* praising their authenticity, you know.

2. The Rubber Tree (22.3, "The Mark of the

Rani"). By 1985 they can't even do costume-based pseudo-historicals properly, and on location in what ought to be the most atmospheric place ever, they blow it all by setting a scene in a real woodland and adding a rubber model tree-trunk of the kind you get in fancy-dress shops. What makes this really inept is the context. If you don't already know, the plot involves (dear God, it's a struggle just to write this, let alone watch it on first broadcast) landmines that turn people into trees. The heart of the rhetoric is that the evil queen-bitch-scientist Time Lord, the Rani, denies the dignity of human nature and is proved wrong when someone recently "arborified" saves the Doctor's sidekick by rapidly growing a branch and pulling her out of trouble. On-screen, this looks like a man in a rubber tree-trunk groping Nicola Bryant. And everyone emotes as though it were proof of the existence of the soul.

1. Dinosaur Porn (11.2, "Invasion of the Dinosaurs"; 22.3, "The Mark of the Rani"; 10.2, "Carnival of Monsters"). Those who don't learn from pre-history are destined to repeat it. The career of effects perpetrator Clifford Culley is an object lesson in overconfidence, and we should refer the interested reader to the entries on "Robot" (12.1) and That Tank;"Planet of the Daleks"

(10.5) and the Rolykin Army; and the shot in episode six of "Invasion of the Dinosaurs" in which a tyrannosaurus and a brontosaurus appear to be making out in public just outside Marylebone Station. What makes it all worse is that it was a repeat of a questionable effect from the previous year, the plesiosaur that attacks the S. S. *Bernice.* "Carnival of Monsters" made it obvious that using CSO to superimpose monsters shot on video over backgrounds shot on film was a definite no-no (tell that to director Douglas Camfield; see number six), and that CSO and dinosaurs were best kept to a minimum anyway. So a year later they decided to shoot the location footage of'lnvasion of the Dinosaurs" on film before adding the effects, thinking,"what could possibly go wrong?" By the mid-'80s they obviously weren't so fussy about irritating the viewers with badly-conceived effects, so they thought, "hey, let's give the Rani a pet tyrannosaurus embryo that grows up fast when her TARDIS goes wrong in defiance of all logic… that'll surprise and delight the fans" After all that had gone before (see number two), it almost seemed competent.

horror of fang rock 15.1

When Was Doctor Who Scary?

The obvious answer to this is “when you were eight years old”. The programme’s development always kept abreast of what television could do and what small children could handle, but the definition of “scary” varied wildly. As we saw in “The Ark In Space” (12.2), the visceral, gory notion of what the Wirrn are up to is mainly suggested, never seen. On-screen what we get are sleeping-bag monsters and people with blister-wrap on their hands. *Doctor Who* traditionally went for conceptual horror rather than entrails; if you were old enough to be troubled by the Wirrn, then you were old enough to know that it was just actors and rubber.

But that’s *horror,* not terror. It’s got more to do with disgust than fright. Knowing, cerebral fear is never going to match the sickly, suffocating kind that tugs at children’s guts.There’s something else at work here, and the problem one has explaining this to anyone who wasn’t there at the time is that quite simply, the context has altered beyond all recognition.

Until the early 70s, the very signature tune of *Doctor Who* used to terrify children. It sounded unlike anything else, anywhere. The title sequences were also unnervingly”other”and their sheer strangeness could lead to nightmare-visions. This faded as synthesisers became more widely-used, and besides, the “Bohemian Rhapsody” video was quite clearly more disturbing than anything produced by the BBC effects department or Radiophonic Workshop.

Yet things were different in the early years. It was the place of *Doctor Who* within Saturday Nights on BBC1 to be (a) unlike everything else, but (b) interpretable in the context of *how* you watched television (see **Is This Really a Science Fiction Series?** under 14.4, “The Face of Evil”). In the era of 405-line monochrome TV, it was an effort of will to make sense of any picture, be it Sonny and Cher, Geoff Hurst scoring a hat trick against Germany, or

Yartek, Leader of the Alien Voord.Televiewing - as they used to call it - was an active, participatory process. “Background” TV came with 625-line transmission, and sets that warmed up almost as soon as you switched them on. The tradition of cowering behind the sofa, although it’s been made a cliche lately, was part of the way one engaged with all television; it was ’real’but not “true” it was only happening because you willed it to happen. Any child frightened by the Daleks had, to a certain extent, decided to be frightened. And that child was excited beyond accepted limits, then the rest of the family were in the room. Nobody watched television alone.

The key thing to remember about the Daleks is that, for once, Mum couldn’t definitively say it was a man in a rubber suit. She was equally at a loss to explain how they made those noises. The transition to 625 lines and colour wasn’t a uniform process, so it’s hard to put a definitive date on it, but we’ll assume that by “The Daemons” in 1971 (8.5) most people had fairly clear reception. This was the golden age of the “domestic” monster, hence Jon Pertwee’s oft-repeated comment about a Yeti sitting on a loo in Tooting Bee being more frightening than a monster in outer space. As had always been the case, the sight of the monster was a “tease” usually left until the first cliffhanger. In an odd sort of way the monster took the place of the decorative girl, something there primarily as a spectacle and with characterisation a poor second. The visual aesthetic of the programme was always about putting the “pretty” or “way-out” effect *within* the narrative, even though it was - at any given moment - there for its own sake. A disruption to the normal order of things, like a T-Rex mimsily flapping about in London (11.2,“Invasion of the Dinosaurs”), was odd rather than scary. Someone trapped in a warehouse with a dinosaur was scary.

In terms of conceptual fear, the scariest thing in *Doctor Who* was always the thought of being shut off from home. The programme’s very premise involved wrenching people away from the familiar with no hope of return. Although the early 70s UNIT era robbed us of this, the first year of Tom Baker’s reign saw Our Heroes trapped inside increasingly unsympathetic bureaucracies. Being judged by the standards of another time and with no appeal to anything outside those rules was the central terror of “The Ark in Space” and “Genesis of the Daleks” (12.4), not any threat from monsters or gas-

grenades.

Yet context is everything. Ironically, though this far-from-home-ness was almost entirely absent during the early 70s, it was the Jon Pertwee / UNIT stories which allowed the early Tom Baker tales to work so well.“The Ark in Space”just wouldn’t have come off, if we hadn’t seen the Doctor and companions leave Earth a week earlier. Outer space can only alienate you if you’re *trying* to get back to the known world, and part of Season Twelve’s horror is the contrast with the homeliness of stories like “Robot” (12.1). But by the late 70s, things had become almost wholly abstract. The Doctor had no real connection with Earth, and there were no longer any human beings on board the TARDIS, so getting stuck on a spaceship in a far-flung corner of the universe became “business as usual” rather than “terrifying““The Horns of Nimon”(17.5) sees the Doctor separated from Romana and stranded in the middle of nowhere, yet he seems almost cosy as he hangs in the middle of the void, and Romana doesn’t look particularly bothered by her abduction. By this stage it’s taken as read that the TARDIS crew *can* get out of any fix, and that everybody knows there’s no real danger. The Doctor becomes as solid and as dependable as your parents are supposed to be, so it’s little wonder that younger viewers found it so disturbing when he became either untrustworthy (15.2, “The Invisible Enemy”) or violable (see 18.1,“The Leisure Hive”, or much, much more on this).

But back to the mid-’70s. Another odd feature of Philip Hinchcliffe’s term as producer was that no-one could judge whether a monster or effect was in any way scary until it was transmitted. During filming, such items as Magnus Greel (14.6, “The Talons of Weng-Chiang”) or the Doctor’s head being held underwater in freeze-frame (14.3, “The Deadly Assassin”) looked vaguely ridiculous. On the other hand the giant rat looked scary in the studio, but not on-screen. Hinchcliffe’s success ruffled feathers amongst the BBC hierarchy, and his replacement Graham Williams was ordered to tone down both the violence and the “scariness?

However, many of the ideas in Williams stories are - on reflection - more repulsive or anxiety-inducing than any latex mask or slimy green goo. leela being steamed alive (15.4,“The Sun Makers”) is

potentially the most unpleasant idea ever, but it's all talk.The anecdotes of the Graff and his general, Sholakh (16.1, "The Ribos Operation"), are bloodcurdling. Seeing Captain Rigg become addicted to vraxoin (17.4, "Nightmare of Eden") may not send kids scuttling behind the sofa, but could be harrowing for adults, assuming any were taking the story seriously by that stage.

Yet the gut-level, child-nightmare kind of fear that had once been associated with the series pretty much ended with "Horror of Fang Rock" *Doctor Who* still utilised the "props" of fear-mon-gery - notably the monsters - but all the strangeness had gone, and without strangeness there was no fear. In 1979 the popular media was still claiming that creations like the Mandrels ("Nightmare of Eden", again) were giving children sleepless nights, though by that stage magazine photos of *Alien* were already circulating around school playgrounds and the opening credits of *Tales of the Unexpected* had set a new benchmark for weird terror among seven-year-olds.

With children, however, there's one final problem. No-one knows what a child will find scary or laughable. Many things can be both at once, if they're unsettling. After all, laughter is relief at a threat that's passed, or the result of a surprise. For every tot who thought the Wirrn were cute, there's someone who messed himself over the disease-riddled Lazars grabbing Tegan (20.4, "Terminus"). For everyone who sneered at the Sea Devils in 1972, there's someone who was distressed by them in 1984 (21.1, "Warriors of the Deep"). So far, however, extensive research has failed to locate anyone scared by the Myrka.

When the programme was aimed primarily at scaring children, it failed to convince as drama… though it was often hugely memorable and frequently produced some lovely imagery, and since it was originally only meant to be seen *once,* you could argue that this alone was enough to make it worthwhile. But when it was exploring characters in odd and stressful situations, it also - as a byproduct - gave a lot of children the screaming ab-dabs. Which may have been a better strategy.

the invisible enemy 15.2

Cultural Primer #2: Why Blue Peter?

Anyone growing up in Britain after 1958 knows about *Blue Peter*. It's just there, like the rain or Wales.The format is simplicity itself. Three or four twentysomethings in a brightly-coloured set -which actually looks a bit like the white void from The Mind Robber" (6.2), only with the endless vacuum broken up by multicoloured shelving units - present a live, often-educational magazine show for children with "exciting" filmed inserts about one of the presenters climbing up the side of a famous building or potholing in a Victorian sewer.

For two generations these people were a surrogate family, with pets and hobbies and occasional fashion-sense defects, and their interaction with the nation's youth was more familiar and familial than viewers writing to "ordinary" TV stars. So come the autumn they'd start asking for old milk-bottle-tops, discarded toys, used stamps or what-have-you for their annual charity appeal, and they'd be inundated. When one of them got flack for wearing old jeans, there'd be a nation of ten-year-old Gaultiers sending in designs for suits.The programme had - and still has, though the series has been almost buried by the modern media - its own traditions, its own ceremonies, its own dogs and cats and tortoises who've lived, hung around the studio and died as the years have gone by.

Doctor Who producers did their utmost to use *Blue Peter* as a means to entice the nation. Just look at 1967, a year when the official histories say that Patrick Troughton hid from the public. There he is as the judge of the "Design a Monster for *Doctor Who"* competition, which he did in costume and in character (the runner-up was Andrew Partridge of Swindon, ten years before his first appearance on Top Of The Pops in XTC). When the BBC Radiophonic Workshop took delivery of its first ever synthesiser, it was wheeled into the

Blue Peter studio to be demonstrated by Brian I Hodgson, and we saw a clip of it providing the sound of the Yeti spheres (in 5.2 "The Abominable bowmen"). Each new Doctor made an early appearance on the programme as a guest, prompting a series of flashbacks, often the same montage - and script - used in 1973 for the Tenth Anniversary / Jon Pertwee / "Whomobile" item (see 11.2, "Invasion of the Dinosaurs"). In fact both programmes grew out of the same ethos of public service television, aiming to provide something the commercial stations wouldn't or didn't, engaging the young as responses possible without being dull. Both retained the original idea that in an age before widely-available air travel, it was the BBC's job to show its viewers the world, to set it all in a historical context but as a series of human-interest stories. *Doctor Who* did this with time-travel.fi/uePeferdid it with trips abroad and lots of dressing-up. But there are moments, especially in the Hartnell episodes, when the programmes are almost indistinguishable. In "Marco Polo" (1.4) Ian explains to the viewers how being so high above sea-level makes water boil at lower temperatures, just as Barbara realises she's meeting a Famous Person from History. All that's missing is a cake-decorating hint. One area where *Doctor Who* had an obvious advantage was fights, but after the Noakes-Purves team settled in (keep reading) they even ended up doing stunts with *Doctor Who's* regular action-troupe Havoc.

The big problem with all of this, of course, was that the surrogate TV family was almost unbearably middle-class. Those who've seen "The Talons of Weng-Chiang" DVD will know that over a number of weeks *Blue Peter* showed its viewers how to build a cardboard "theatre" for the cut-out *Doctor Who* figures printed in the *Radio* 77mes.This culminated in Dick Mills'demonstration of how to make space-aged sound effects with ordinary household items. One of these items was a small tub of resin… of the kind you might use to clean violins. Sorry, what was that? You don't…? Oh, surely you must. Doesn't everybody?

"Making things" was an important part of the *Blue Peter* philosophy. If you're American, you can think of it as a kind of televised Summer Camp, where you were considered to have completed the process once you'd successfully made a spaceship out of glitter and toilet rolls. Indeed, many of the jokes people make about

“spaceships made out of Fairy Liquid bottles” in *Doctor Who* may be mis-remembered folk-memories of *Blue Peter* making the kind of things that *might* have been in *Doctor Who.* Or perhaps the programme just made the audience more aware of the fact that for every Cyberman spaceship you saw on-screen, there had to be someone at the BBC gluing the bits together. Once you’ve seen *Blue Peter’s* instructions for making a doll’s kitchen, it’s hard to look at the diorama of the Mechanoid city in “The Chase” (2.8) without expecting Steven to say ‘…and here’s one I made earlier’. But in the hands of presenter and goddess-of-wisdom archetype Valerie Singleton, the application of sticky-backed plastic became an alchemical process. The prim-but-practical Singleton joined the programme in 1962, and it’s convincingly been argued that she was the template for Barbara Wright.

Key to the programme’s success in the “classic” era, though, was John Noakes. Owner of one of the first outright Yorkshire accents allowed on national television, Noakes was apparently up for anything, no matter how stupidly dangerous. It was Noakes who got sent to jump off Ben Nevis for the film inserts, while his “sensible” co-host Peter Purves preferred to stay in the studio and gently mock him for it. Really you would have expected Purves to be the dangerous one, since he’d already spent a year on board the TARDIS as the aforementioned Steven Taylor (“The Chase” to 3.9, “The Savages”). Other *Blue Peter* presenters to make the transition were Sarah Greene (hidden behind a mask in 22.1,“Attack of the Cybermen”) and Janet Ellis (stuffed into space-overalls for 17.5, “The Horns of Nimon”). Another, Mark Curry, was part of a double-act with Bonnie Langford when they were both ten.

It was, inevitably, on *Blue Peter* that K9 was first introduced to the public. More accurately, he was introduced to Noakes, a well-known dog-lover. This was the era when both programmes were important to the national psyche, known to all even if they weren’t always *watched* by all. Today Noakes, Singleton and Purves have the same iconic status in the minds of the British public as Tom Baker. Like him, they’re seen as representing the series in its golden age, and all presenters from the early ’80s onwards are lumped together as “the new ones”

image of the fendahl 15.3

Is This the Quatermass Continuum?

Among the many things which surprised and bewildered first-time viewers of"Remembrance of the Daleks" (25.1) was the short exchange between Rachel Jensen and Allison, the two she-boffinsofthe ICMG, circa 1963: 'I wish Bernard was here.' 'British Rocket Group's got its own problems.' The reference to *Quatermass* is obvious, at least to anyone obsessive enough to remember Professor *Quatermass'* Christian name and occupation. But we should pause here to remember what the BBC's original *Quatermass* serials *(The Quatermass Experiment* in 1953, *Quatermass II* in 1955, *Quatermass and the Pit* in 1958-59) actually represent. By now younger readers won't need to be told about the impact these serials had on *Doctor Who,* or about the way that whole chunks of the 70s Earth-bound stories seem to have been lifted from Nigel Kneale's scripts. Older viewers will know that *Quatermass* had a massive impact on all televised drama.

In an era when "dramatic presentation" generally meant a live play performed in front of the cameras as if it were still stage-bound, the *Quatermass* stories were among the first BBC productions to use television as a medium in its own right, to play to the strengths of the camera as well as banking on the Corporation's ability to handle complex live broadcasts. Dark, deft and occasionally political, the stories would have affected all but a few people working in TV throughout the '60s and 70s, and at the time they scared the willies out of the viewers so badly that the second series came with its own "not for those of a nervous disposition" warning. But in terms of SF, they also introduced or at least, popularised - concepts which later TV fantasies made almost mundane. *Quatermass and the Pit* made connections between human evolution and the space-age that became par for the course in the decades to follow. *Quatermass II,* broadcast at a time when secret American military bases were

appearing across the British landscape with no official explanation, invokes a sense of government / alien conspiracy so much more meaningful than anything in *The X-Files* that it's almost embarrassing. (In the days when government was starting to be perceived as letting the public down, and military secrecy was seen as a wartime habit that somehow hadn't been broken, *Quatermass* said what the public was only just starting to suspect. And let's remind ourselves that it was Kneale's TV adaptation of 1984 which really caught the public imagination, not Orwell's original book.)

So it's hardly surprising that sooner or later, someone should have suggested that *Doctor Who* and *Quatermass* might possibly be able to meet each other, r at least share mutual acquaintances. This is by no means as banal or offensively *wrong* as suggesting that - and the example is inevitable - *Doctor Who* and Star Trek might co-exist in the same universe. It's not just that the two BBC programmes share a certain iconography, or a certain sense of empiricism-under-pressure, or a certain moral outlook. Though he's an authoritarian and often-unpleasant man, Bernard *Quatermass* the science-detective deals with the first alien threat to Earth with reason rather than violence, and spends much of his later career trying to convince pompous military idiots to think things through properly. Nor is it purely that the two universes operate in such a directly comparable way; The *Quatermass* Experiment begins with the first manned space-mission returning from the void and crash-landing near Croydon, unthinkable in just about any TV series *except* these two.

But no, perhaps above all else… they both belong to a very specific tradition of television. Even apart from the difference in approach mentioned in **Is This Really an SF Series?** (see under 14.4,"The Face of Evil"), a programme like *Star Trek* is the inheritor of a legacy of westerns, born out of early-twentieth-century Hollywood. *Doctor Who* comes partly from a tradition of stagecraft, and partly from a tradition of technical "enthusiasts" inventing new methods of programme-making in rooms full of gutted oscilloscopes. With typical British mistrust of the slick and the professional, *Doctor Who* and *Quatermass* both show us worlds where everything from a spaceship to a mindreading device can be lashed together by gentleman-scientists with good intentions. In short, if the two worlds aren't immediately compatible then it's easy to imagine

someone *making* them compatible, by wrapping gaffer-tape around one of the connecting leads and fixing up the sockets with a soldering iron.

But let's look at the close details. For the most part, the two continuities segue together beautifully. In *Doctor Who* Britain has a space programme capable of manned flight to Mars by the 1970s, something which could well be explained by the presence of *Quatermass* and his British Rocket Group in an earlier decade. Readers of the New Adventures will notice that the disturbed near-future society portrayed by Kneale's (oft-forgotten) 1979 version of *Quatermass* is palpably similar to the near-future of *Doctor Who* novels like *Warlock*. *Quatermass and the Pit* claims that between three- and five-million of years ago, a now-extinct insect-like species arrived on Earth from Mars, affecting both the genetic and cultural development of humanity. Though this was obviously the inspiration for "The Daemons" - and the same homs-equal-power argument is made in both stories - it's worth pointing out that the Fendahl skull also arrived from Mars during Earth's prehistory, apparently having caused no end of havoc on the way. Since the Fendahl has a habit of leaving dead planets in its wake, we might theorise that the *Quatermass* Martians were the ones who brought the skull here (though it should be mentioned that *The Pit* never conclusively proves the three-legged grasshopper-aliens to come from Mars… their origin is mostly *Quatermass'* own speculation, but he's generally right about these things).The Martians are said to have genetically modified our ancestors, which could easily have been part of the Fendahl's DNA-fiddling process, if the Martians themselves were under the skull's influence.

Lance Parkin's *History of the Universe* reasons that the only problem in reconciling the two universes is that in "The Seeds of Death" (6.5) the Doctor describes Yuri Gagarin as the first man into space, whereas in *Quatermass* the first men into space were obviously English and quite right too. But it's at least feasible that history in the *Doctor Who* world glossed over the British rocket experiment. Given that the only apparent mission survivor ends up turning into a giant gestalt fungus-creature, it's not hard to believe that the UK cosmonauts'names might have been forgotten by an embarrassed nation. Indeed, Parkin himself has *Quatermass* appear in cameo in

his novel *The Dying Days,* warning of the dangers of messing around on Mars. A sceptic might point out that *Quatermass and the Pit* ends with the Professor making a TV appearance in which he tells the whole world about the Martians, something that not even General Carrington quite achieved (7.3, "The Ambassadors of Death"), but we have no way of knowing if the speech was actually broadcast as all we see is the Professor standing in front of a microphone.

Other apparent glitches are no more troublesome than the glitches between individual *Doctor Who* stories. It's odd that the authorities in Season Seven don't realise the risks of staging top-secret projects at big, isolated plants after the events of *Quatermass II*... but no odder than them trying to draw extra-terrestrials to Earth in "Logopolis" (18.7) after so many invasion attempts in the'70s. It's odd that the public doesn't seem less sceptical about the existence of aliens after seeing Westminster Abbey get eaten by the aforementioned space-fungus… but no odder than the public's lack of interest after the events of "The Web of Fear" (5.5) or "Invasion of the Dinosaurs" (11.2). *Quatermass and the Pit* doesn't contradict The Daemons" any more than "Image of the Fendahl" does. In fact, perhaps the biggest question is "why didn't UNIT just hire *Quatermass*?! (Maybe they tried. Maybe he was just sick of dealing with moustached military types after what happened in the'50s.)

However, there's one truly fundamental difference between *Quatermass* and much of *Doctor Who,* one that can be seen most clearly in a scene which overtly references *The Quatermass Experiment.* At the end of "The Ark In Space" (12.2) it's shown that even after generations of stifled humanity, some spark of nobility persists in people like Noah. In the *Quatermass* serials, human nature is bad and getting worse. A lone scientist resolves the first crisis out of guilt for starting it; a brutish mob resolves the second. The third ends with a stern warning about humanity's selfdestructive impulses, and the 1979 version shows primeval barbarism to be the norm. Kneale believes in Original Sin, in a modern disguise (a (act borne out by his other scripts, such as the inadvertently hilarious but oddly accurate *The Year of the Sex Olympics,* a 1968 BBC production about reality TV). *Doctor Who* is generally Romantic - note the capital "R" - and believes in innate goodness thwarted by circumstances, a fact that's also noted in "The

Ark in Space”

Still, by the same token it’s hard to believe that certain *Doctor Who* stories can coexist in the same universe. Perhaps we could resolve this - aesthetically, if not logically - by saying that stories like “The Enemy of the World” (5.4), “Invasion of the Dinosaurs” (11.2) and “The Seeds of Doom” (13.6), which take a pessimistic view of the human condition, *do* belong in the *Quatermass* continuum; whereas “The Wheel in Space” (5.7), “The Monster of Peladon” (11.5) and “The Masque of Mandragora” (14.1), which are fundamentally upbeat about human perfectability, don’t.

However, it may be worth mentioning that in spite of the similarities between the two programmes, Nigel Kneale has never liked *Doctor Who* very much. (It’s apparently not the plagiarism that bothers him. His stated reason is that he always tried to keep the scary stuff away from children, but then *Doctor Who* came along and wrecked his careful censorship.)

underworld 15.5

Just How Involved are the Time Lords?

The funny thing is that the universe-in-general always seems to know exactly as much as we do. Before “The War Games” (6.7), nobody the Doctor encountered so much as breathed the name of the Time Lords. Even given that the Doctor never used to introduce himself *as* a Time Lord, you would have thought that one or two of the cosmic powers he came across might have mentioned them in passing, or at least have been able to identify the TARDIS as a product of you-know-where.

So it makes a certain sense that when “The War Games” finally presents the Time Lords to us, they’re shown to be rather distant individuals who never get involved with any of the “lesser” cultures. But no sooner have we found out about them than *everybody* knows who they are, from Axos upwards. Suddenly they’re doing deals with cultures all over history, and every space-power worth its salt has done a quick assessment of their homeworld (from the Sontarans in 11.1,“The Time Warrior” to the Usurians in 14.4, “The Sun Makers”… Robert Holmes was always keen on a political,“famous” version of Gallifrey).

Now, for our purposes, we’ll assume that this connection between what we know and what the *universe* knows is a coincidence.The alternative is to believe that the Doctor’s heart-felt speech in The War Games”, n which he claims that his kind have a duty to fight ‘evil’, really *does* convince the Time Lords to give up their millennia-old stay-at-home ways in a matter of minutes and instantly changes the nature of their entire society.Though this might explain an awful lot, it’s also nigh-impossible to swallow.

Besides, in “The Time Warrior” the Doctor describes his people as ‘galactic ticket-inspectors’ who clamp down on reckless,

unauthorised uses of time-travel. Unless he's referring to the things his people have been doing in the four or five years since his trial, it seems that the Time Lords have always been prepared to… well, let's not say 'meddle" Let's say "monitor" "Underworld" claims that they adopted a policy of non-intervention after the tragedy of Minyos, but let's make sure we understand what this means. It *doesn't* mean that after Minyos, the Time Lords decided never to tamper with the histories of other worlds. The Minyan debacle wasn't like the Doctor's Gallifrey-sanctioned intervention in, say "The Curse of Peladon" (9.2). The Time Lords got *personally* involved on Minyos, actively becoming part of the Planet's culture, making themselves known to the locals and - to an extent - trying to re-make the civilisation in their own image."Non-intervention" doesn't mean a complete ban on fiddling around with other planets, it just means not tying those planets to Gallifrey.

So Gallifrey is happy to interfere, when it feels the need. But what are the criteria? Where does it draw the line between being the watch-tower of the universe, and being the heart of an empire which actively wants to impose its own values on the rest of time and space? The Time Lords clearly feel they have a mandate, but it's not clear what that mandate is. They *do* feel obliged to clamp down on other people's time-travel experiments -see especially 22.4, "The Two Doctors" - but they apparently don't block every species' attempts to develop time-technology or they would have moved against the Daleks much "sooner" (compare 2.8, "The Chase" with 12.4, "Genesis of the Daleks") and might well have stopped the Navarinos (24.3, "Delta and the Bannermen"), among others. Though the name "Time Lord" might suggest that time is their *only* concern, they also step in when the plebian species come close to developing immortality (23.2, "Mindwarp"). Yet as they seem to exist outside the normal course of history, it's hard to believe they're playing an ordinary political power-game. They seem to have a greater agenda than pure self-interest.

A common view is that the Time Lords are there to maintain the integrity of history. In this version of things, history has a "proper" shape (though possibly the Time Lords had some hand in deciding that shape, a long time ago by *their* calendar). The Doctor's people are, on the whole, defending the way-things-should-be. They stop

certain species gaining time-travel because that time-travel would jeopardise the timeline, and they make sure planets like Peladon join galactic federations because it's "right" for that to happen. This would, at the very least, explain why they accept the Doctor's defence in "The War Games" They acknowledge that he *has* been defending time, and that on the whole he's just done the jobs they would have had to do themselves anyway. No wonder the argument is couched in terms of fighting 'evil'. Damage to history is, in theTime Lord philosophy, as close to evil as you can get.

The trouble is that this idea assumes there's no free will anywhere in the universe, and very little room for manoeuvre. Perhaps the Doctor can save a few more lives on any given planet than *should* have been saved (although this would, logically, have massive long-term consequences on the timeline), but the big events in history fit together like a majestic clockwork and for the most part he's just performing maintenance duties. And aside from the fact that this isn't really in the spirit of the series, it doesn't sit easily with what we actually see of the Time Lords. In "Genesis of the Daleks? of course, they actively try to distort time by getting the Doctor to alter Dalek history (12.4). In "The Two Doctors" - where they negotiate with the people of the Third Zone to try to affect the outcome of the Kartz-Reimer experiments, rather than trying sneaky time-travelling sabotage - the implication is that they're trying to reach a settlement rather than working towards an absolute, fixed outcome.

Perhaps the simplest explanation, then, is that history is flexible but that theTime Lords' duty is to make sure the right *kind* of history is always in effect (see also **Does History Keep Changing?** under 2.4,"The Romans"). They're happy to fiddle with the details, to push planets into politically suitable" positions or ensure that species X isn't wiped out by species Y, yet certain things have to remain constant. So it's important that, for example, they don't end up with a universe in which the Daleks invade every single planet by the Middle Ages or a universe where there are whopping great holes in the structure of cause and effect.

Virtually everything the Time Lords ever do fits this pattern. It may even explain the Doctor's reluctance to let his people find out about

his interference on Frontios (21.3); that far in the future, with humanity's existence hanging on the survival of just a few colonies, *any* intervention could cause a massive and unpredictable effect on events to come. And if we assume that the Time Lords also have a vague moral code, which they're happy to talk about but which never really gets put into practice for practical reasons, then it might explain the Doctor's rather rose-tinted view of Gallifreyan conduct in "The Hand of Fear" (14.2).

in fact, if this is the case then the real question is this: why don't they intervene more often? It's reasonable that they might let the Doctor sort out affairs of piffling backwater planets, but why aren't the Time Lords in evidence whenever the entire universe is threatened (18.7,"Logopolis"and 20.4 Terminus"… for starters)? Still, ime and time again there's the suggestion that the Time Lords'

actions are limited, almost certainly for fiddly technical time-travel reasons that we'll never be able to fully understand. See "Genesis of the Daleks"for much, much more of this kind of thing.

However, one thing seems clear. Despite the claims of fan-fiction authors the world over, there's never any real indication that the Time Lords' interference in other people's affairs is in any way covert, unofficial or technically illegal. The notion that the Gallifreyan elite denies all knowledge of intervention, and gets shady semi-criminal organisations to do its dirty work in secret, is popular with many - and was never more popular than during the great *X-Files* conspiracy-boom of the 1990s, sadly - but not supported by on-screen evi-dence.There's no suggestion, not even in the mention of the Celestial Intervention Agency in "The Deadly Assassin" (14.3), that the Doctor's frequent missions for the Time Lords are a breach of the Time Lord code.They're often secret, but for security reasons rather than because the truth would horrify Gallifrey.

In "The Two Doctors" for example, the High Council wants the Doctor to act unofficially for purely diplomatic purposes. Intervention in the affairs of others is something Gallifrey sees as unseemly, *not* something criminal. When the Doctor is once again called to trial - in 23.1, "The Mysterious Planet" - he's not charged with desecrating the natural order of things, but with acting

recklessly and without due caution. It later transpires that there *are* dirty goings-on in the Capitol, but the Gallifreyans are shocked by the conspiratorial hi-jinks of the corrupt High Council (23.4, “The Ultimate Foe”) even though five episodes earlier they weren’t shocked by the idea of the Time Lords using assassins to take out key figures in galactic politics.

If the Time Lords don’t want to get their hands dirty, then it’s mainly because they see the affairs of the outside universe as being beneath them. The Doctor is used as their cat’s-paw not because they can deny all knowledge of him, but because nobody on Gallifrey would sink to the level of doing that sort of work.

the invasion of time 15.6

How Might the Sonic Screwdriver Work?

The first, casual mention of this gadget in “Fury From the Deep” (5.6) was no big deal; we’d had sonic” this and “sonic” that all through 1967. It was only with “The Dominators” (6.1) that things got interesting, when the device turned out to have useful cutting-through-case-hardened-Mennonite-like-it-was-cheese properties for final-episode use. After that it became a handy electromagnet, a marsh-gas ignition system and all-purpose electronica-scrambler. How can sound do all this and undo screws, too?

Well, in principle it shouldn’t be too hard, as sound (compression and relaxation of molecules, usually air) involves giving energy to these molecules. Which is the definition of “heat”, as well. High-frequency sound is fairly directional, but not *that* directional. Acousticians have developed two handy tricks to make sure that it’s focused. The first of these is the fact that a spherical source with a hemispherical “dent” in it - think of the Death Star - will focus the sound at the focal point of the parabola. This technique was actually used for an experimental weapon developed by the Soviets in the 1970s, but it wasn’t terribly effective as a field weapon as the business end was a thirty-foot-wide ball of concrete.

The other technique is the Tartini effect. Tartini, an eighteenth century composer, noticed that two loud notes will produce a third; the third note will it the exact difference between the first two, in vibrations per second and measured in hertz (hz). So two high-frequency signals from a hand-held device (one aimed at the screw, and the other at whatever the screw is screwed into) will make a third sound, a vibration between screw and location.

Now, unless the Doctor’s wired up *his* device to make a “prrrrrrrrrrrrr” noise just for a laugh, that third vibration seems to

be an audible note. So it must be between 20 and 200,000 hz, and probably nearer the latter, in the ‘60s version at least. Once Dick Mills takes over as sound effects supremo in the ‘70s, the more familiar “wobbly” screwdriver effect varies around Middle-C (263 hz). Note, though, that when igniting marsh gas (10.2, “Carnival of Monsters”) the sound rises to beyond audible pitch, suggesting a huge amount of energy being focused on a patch of air twenty feet away. This seems to cover all bases, except the very low intensity delta waveforms the screwdriver generates as part of Nyssa’s cure (19.3, “Kinda”).

Generating heat raises its own problems. Warm air is less dense, so it conducts sound less successfully, and fluctuations in air density will alter the pitch. Ah well.

So what about all this magnetic malarkey? Glorified loudspeakers may generate the sound, although for the speakers to be small enough to fit into a gizmo the size of a tyre pressure gauge, this would require magnets strong enough to make the keys to Bessie or the Doctor’s toffee tin really dig into him. His jacket pocket would inconveniently fly towards all large metal objects nearby (including Daleks, Cybermen, Vocs, spaceships…). However, if the rig is some kind of piezo-electric “speaker” - one which directly converts pressure into an electrical impulse, or vice versa - then it’d lake more effort to turn the device into a magnet, so the Doctor wouldn’t do it routinely (which he doesn’t). Perhaps, therefore, it’s the power-source that needs to be converted.

Mind you, we’ve never seen the Doctor recharge his favourite implement, so it’s either incredibly fuel-efficient or nuclear powered.

What Do the Guardians Do?

On having *Doctor Who* flung at him by the BBC, Graham Williams did some market research. Working on the assumption that the average viewer was a fifteen-year-old boy, he went to see what fifteen-year-old boys were reading and watching. One word kept coming up:“epic” In the period between *2001: A Space Odyssey* and *Star Wars* there were any number of fantasy movies aimed at younger audiences, often starring Doug McClure and involving dinosaurs, but more interesting to his target group were series of novels like *Dune,* the *Foundation* trilogy, “Doc” Smith’s *Lensman* series and Michael Moorcock’s interlocked sword “. sorcery slashers and alternate histories.

Then, as Williams shadowed Hinchcliffe, he found that BBC budgets weren’t conducive to this approach. Worse, the set-up he was inheriting was constrained by the presence of the Time Lords. When the Time Lords had been “noises off” this hadn’t been a problem, but now they were there, with a known homeworld and culture (although this also appealed to those “core” viewers, so junking the Time Lords outright wasn’t on). The obvious solution was to make Gallifrey responsible for justa small part of time and space. This would, theoretically, have three effects. It would broaden the | canvas of the programme beyond anything the average viewer in - say - 1967 could have imag-ned, and allow the series to explore its potential now that a generation didn’t need to be sold on the idea of time-travel every four episodes or so; it would put the Doctor’s haphazard exploits into a bigger framework than ever, possibly with a higher set of priorities than simply rebelling against the tedium of Time Lord life (“more than just a Time Lord”… sound familiar?); but most impor-tant of all, it would overrule the previous attempts I to “bible” the programme into a safe, predictable format and leave it capable of doing just about anything.

The initial proposal, submitted on the 30th of November, 1976, is

as intriguing for what it *doesn't* tell us about the Guardians as what it states or suggests.

'Doctor Who (1977 Season)" as the three-page memo is called, has been reproduced and ridiculed as "the weirdest job application in history". But consider the target audience. Williams had been lumbered with this series on the understanding that, as someone who knew science fiction it was ideal for him. Knowing the difference between written SF and what *Doctor Who* had done so far, it irked him that the BBC thought of the series as *Tomorrow's World* with a plot or -worse -a home-made *Star Trek*. Pitching his memo as a reframing of the programme's philosophy in terms of particle physics (mainly filched from *The Tao of Physics,* a very '70s best-seller by Fritjov Capra … more of this under 18.5,"Warriors' Gate"), he begins with an idea of binary oppositions, rom the subatomic level to the macrocosm. If this hierarchical organisation persists, he argues, then the "Pyramidal Hierarchy" stretches through time and space and can have no apex. So beyond the Time Lords there must be a higher power, or rather pair of powers. Here we have to note that although he mentions a series of oppositions like "Chaos" and "Order" "Black" and "White" "Good" and "Evil" he never wholly identifies which is appropriate to which Guardian. He mentions that many of the Doctor's past adversaries have been unwitting servants of "Black" but that the balance between forces is more important than either.

One final point to consider before we progress to the broadcast version. Perhaps the Guardians are Time Lords, advanced to a higher degree along their own paths. Perhaps all of this is a test to see whether the Doctor qualifies for advancement; perhaps it's a gigantic fraud. Does the good guy always wear the white hat? None of this is out of keeping with the thinking of either Barry Letts (see especially 11.5,"Planet of the Spiders"and 9.6, "The Time Monster") or Andrew Cartmel (see especially 25.3, "Silver Nemesis" and 26.4, "Survival"), but it does open up the possibilities for an entirely new phase of the programme.

The first and most obvious thing to observe about the Guardians' on-screen debut is that it's withheld until the Doctor has been President of the Time Lords. Logistically this was for reasons given

under “Horror of Fang Rock” (15.1), but in story terms it suggests that the Guardians’ existence is only a rumour to most Time Lords. Romana’s more surprised by the fact that someone can impersonate the Lord President than the fact that beings beyond the Time Lords actually exist. The Doctor’s question about the White Guardian’s identity is answered ‘do you really need to ask?’, which aside from the tease to the audience that this is God (see 3.3, “The Myth Makers” for a possible sidelight on this) might imply that the Doctor knows more about these entities than the rest of his kind. But note, also, the lack of respect shown by the Doctor to this omnipotent being. He calls the Guardian ‘sir’, yet he clearly just wants to be elsewhere and doesn’t agree to the mission until he’s threatened. If White = Absolute Good, then this attitude would be extreme *lese-majeste.* It’s fair to say that the Doctor feels more comfortable with White than with Black - it’s hard to imagine him doing the Black Guardian’s bidding under *any* circumstances, and he and White express similar philosophies in “Enlightenment” (20.5) - but in the end he carries out his mission in the name of balance, not giving either Guardian an advantage.

The paradox here is that if the White Guardian were unopposed, then the universe would be just as dead as if the Black Guardian got things his own way. (In fact, as the 1977 memo states, the apocalypse wouldn’t be instantaneous; there’d be no joy for Black in that. But for millennia, worlds and their inhabitants would suffer… compare this with the slow unravelling of causality described in 22.4, The Two Doctors”.) Both Guardians are, in their ways, agencies of entropy. If we take the standard definition of entropy as the tendency of things towards the most probable state, i.e. death and inertia, hen a dynamic, living cosmos needs a tension between rigid order and a chaotic void. As physicists, philosophers and Information theories wereall suggesting at the time, binary oppositions are formed by underlying symmetries which are really similarities. Chalk and cheese are, after all, both white, crumbly, calcium-based substances with one-syllable names beginning “ch-“. The White Guardian usually claims that both sides are necessary (at least for the foreseeable future, as in the ponderously enigmatic finale to ‘Enlightenment”), and the programme tends to wesent White’s explanations as “true” perhaps because order finds it harder to lie than chaos.The Guardians are therefore extremes of

tendencies, between which all created matter has to be suspended.This is in keeping with the broad tendencies of known science, especially on the pop-science side (see **What Does Anti-Matter Do?** under 13.2 'Planet of Evil").

In "Mawdryn Undead" (20.3) the Black Guardian tells Turlough that for all his powers he'cannot be seen to interfere'. Seen by whom? The other Guardian - assuming it really *was* White dressed up as the Man from Del Monte in 'The Ribos Operation" (and *see* 16.6, "The Armageddon Factor" for a possible alternative) - seems to have detailed knowledge of a preordained future. Logically, therefore, all covert intervention is part of an overall "plan" for the universe. Such mechanistic, predetermined fates were generally considered to be a Bad Thing at this stage in the programme's development, as well as in mainstream 70s culture. From "The Invasion of Time" (15.6) to "Kinda" (19.3), randomness and spontaneity are seen as existential protests and - it's implied -Good Things. It's therefore part of the programme's nature to keep both parties in the background as manipulators rather than instigators, just as "one-offs" and "freaks" are treasured in the face of armies of robots, clones and brainwashed drones.

Doctor Who's reluctance to describe the ultimate fate of the universe beyond the 'Gallifreyan noosphere' (21.3, "Frontios") means that we only have supposition as to which side, if either, will prevail. It's been speculated, for example, that the Guardians are reverberating backwards in time from the universe after ours to make sure conditions are suitable for that cosmos to be created (compare with 26.3, "The Curse of Fenric"; 20.4, "Terminus"). Nothing we've seen contradicts this, but it's tenuous. We can say with some certainty that they act like shepherds for intelligent life. Each can only know of the other's activities from the consequences, after which it's too late (so the Blinovich Limitation Effect applies to them, it would appear… see **How Does Time Work?** under 9.1,"Day of the Daleks"). Free agents like the Doctor are used to introduce random elements into otherwise pre-determined schemes; oddly enough the embodiment of disorder is the one who gives precise, detailed instructions with clear descriptions of the consequences, most notably in "Mawdryn Undead". Meanwhile White simply gives veiled hints and threats, and leaves the Doctor to it, despite having

“Ultimate Control-Freak of the Cosmos” as his job-description.

the pirate planet 16.2

Cliffhangers: What Are the High and Low Points?

Ah, video has robbed us of so much. As we've already intimated, the decision to feature a Cliffhangers section in this book might appear odd to younger readers, but there was a time when the episode endings were key to our memories of the programme. With episodes being shown a week apart, you *needed* a strong twist every twenty-two-to-twenty-five minutes. In this regard the narrative conventions of *Doctor Who* are midway between Charles Dickens and *Flash Gordon* (actually, that holds true for the programme as a whole). Sometimes the cliffhanger simply put one of our heroes in peril, and sometimes it involved a character discovering something that we knew long before, especially if the script was by Terry Nation and had "Dalek" in the title. But occasionally they were arranged so that our suspicions and guesses were shown to be way off-beam, either in the final shot or line, or in the resolution of an "impossible" situation. And of course, sometimes they were just fantastic visual ' spectacles.

Here are some of the best…

"Marco Polo" (1.4), episode one. An odd one to start with, as the dramatic turn has already happened. The Doctor has gained the protection and cooperation of Marco Polo, to get himself and his companions from the mountains to comparative safety in Mongolia, but only on condition that the TARDIS is confiscated and made a gift to Mighty Kublai Khan.The Doctor is merrily chuckling as he tells his chums this, but when asked what their next move should be he reveals that he's got no idea; the all-powerful Doctor is laughing out of *hysteria*…

"Tomb **of the Cybermen" (5.1), episode two.**

The other two cliffhangers really don't cut it (keep reading), but here we discover that the entire tomb is a trap to gain recruits; that the Cybermen aren't dead but resting, waiting for humans to take bait; nd that the logician Klieg is a willing participant of the Telosians' evil schemes. Added to this one of the best-paced build-ups in the programme's history gives us no hope that the cavalry will come. Everyone's shut in, on their own and heavily outnumbered, and it's not their lives at stake but their bodies and souls, given the nature of the Cyber-conversion process. And at last we meet the "daddy" Cyberman, who towers over even the other "silver giants" In a wordceek!

"The Leisure Hive" (18.1), episode two. Love him or hate him, you've got to admit… by 1980, Tom Baker's Doctor had become a smartarse. A whole generation had grown up watching him face off against easily-dispatched villains without so much as chipping a nail. Nothing ever seemed to phase him, he knew all the answers, and he hadn't been afraid of anything since the Philip Hinchcliffe days.

And then, suddenly - just as we were getting over the disorientation of the new-look series - he came out of the tachyon regeneration chamber on Argolis… and he was *old.* Not just a *bit* old, mind you, but so visibly ancient that he looked as if he might snuff it at any moment. Now, even the cliffhanger to episode one startled us (the Doctor apparently gets his arms and legs pulled off, and he actually *screams),* but that was over in a flash and the effects made the whole thing a bit suspect. Episode two was something else. For those too young to remember "Planet of the Spiders" this was the first time the Doctor had been made fragile. Violable. Something tangibly *other* than his usual self.The rules had changed overnight, and it was far more unsettling than a whole army of Cybermen.

"The Daleks" (1.2), episode one. Barbara is shut off from the others in a city that's like a giant steel maze. We know, but she doesn't, that the radiation levels are dangerous. We know, but she doesn't, that something has survived and is in the city with her. She wanders into a corridor, and the exit is blocked. The "something" comes towards her. We can't see it, because we're looking at her terrified face from its point of view, and it has something

resembling a sink-plunger - not a hand, not a claw, not a tentacle, but something wholly inexplicable - pointing right at her. It closes in on her…and that's why, orty-one years later, this book exists. Trapped in a cellar with a Dalek, he Doctor and Ace run up the stairs. Ace gets out, but aDalekagent knocks her unconscious.The door is bolted, and the Dalek - scanning the Doctor through a thermal imaging lens - *glides up the stairs after him.* Apart from the palpable terror, the look on his face says exactly what the viewers are thinking: "can they *do* that?"

"Earthshock" (18.6), episode one. So far it's been creepy thrills in the dark, with killer androids m caves turning people into smouldering slime one by one. Then, abruptly, we pull back from the android's POV to a scanner that's relaying everything it sees… and watching it is a Cyberleader. The Cybermen's return was one of two things about this story that the programme-makers went to great lengths to keep secret, and the "buzz" the next morning was amazing. And eight days later, the grins of certain cynical people grew even broader…

'The Massacre" (3.5), **episode three.** The Doctor lies dead in a Paris street, and a lynch-mob thinks that Steven killed him. Given what had already happened in the previous year, almost any change seemed possible.

"Vengeance on Varos" (22.2), episode one.

The end of the first act of "Vengeance on Varos" sees the Doctor trapped inside the hallucinogenic hell of Varos' TV studio, believing himself to be in a desert and collapsing from thirst and exhaustion. That's not the cliffhanger. What happens next is that we pull back to the studio's control booth, where the image of the Doctor's dying body can be seen on the monitor-screens; the director's voice says 'and… cut'; and the screens go blank. *That's* the cliffhanger. So far we've been contemptuous of the "ordinary" characters watching prisoners suffer for their amusement, and then suddenly that means *us.*

"An Unearthly Child" (1.1), episode one.

Seminal, obviously. The two schoolteachers are unconscious, having

been abducted and subjected to some inconceivable process by a strange old man called the Doctor. The police box, incongruous enough inside a junkyard, is now standing lopsidedly in the middle of a bleak wilderness. A shadow looms across the bottom-right of the screen…

“The Pirate Planet” (16.2), episode three. The Pirate Captain forces the Doctor to walk the plank. He does so, and we hear his yell as he falls a kilometre onto rocks. What makes this great isn’t just the “inescapable” nature of the Doctor’s peril, but that the resolution makes us re-evaluate everything we thought we knew about this story and this planet.

“The Deadly Assassin” (14.3), episode two.

Likewise. In a disturbing nightmare-scape, the Doctor gets his foot caught in a railway-line as an engine bears down on him with a sinister maskfaced man at the controls. You just try being five years old and nof worried by that.Come to think of it, try being *over* five and not worried by the implications of it. three. Everyone likes to go on about how good Graeme Harper’s camera-angles were, but what’s *truly* great about his direction of “Androzani” is that he understands the dynamic behind it all.This whole story is a descent into desperation, a plot which begins as if it were a stroll on a nondescript quarry-world and ends with the Doctor tearing his own body apart to save his companion while the planet blows itself to pieces around him.

The last diffhanger, with the Doctor forcing a hijacked ship into a crash-dive as the engines start screaming and Stotz threatens to shoot him in the head, makes you feel as if the whole programme’s caught up in the planet’s gravity and that you’re being dragged towards the bloody conclusion along with everyone else. In itself, the Doctor’s dialogue gets across the acute sense of hysteria, serving the triple function of setting up the cliffhang-er *and* changing the pace of the story *and* laying down the rules for this particular “death” (with the Doctor, almost uniquely, acknowledging that he’s probably doomed).

“The Face of Evil” (14.4), episode three. The Doctor is physically inside the mind of a mad, godlike computer. For the “crime” of

contradicting Xoanon's view about its own nature, the Doctor's role in its creation and what's real or imagined, the machine psychically assaults him. Part of Xoanon believes itself to *be* the Doctor, part wants him dead. Images of the Doctor's face, also that of the monster which Xoanon has created from psychic 'orce, ill the screens. First they proclaim 'go away, I shall think you no more'. Then, as the Doctor resists, a child's voice from the screen-faces cries out: Who *am 17 And now, to underline the point, here are some of the most inept…*

"The **Claws of Axos" (8.3), episode two.** The doctor and Jo are chased around a wobbly gantry ty a beige duvet as the cyclotron exudes bubbles. As the frankly flatulent music goes from "melodramatic" to "overheated; like a silent-movie pianist tying to do it on a kazoo, three lumps of spaghetti bolognese bar the doorway. The Doctor takes this as final proof of his theory, but can't *quite* get the words out properly.

"The Underwater Menace" (4.5), episode three. Most villains have to spend whole episodes practising their ranting before they reach the same point where Joseph Furst, as Professor Zaroff, begins in episode one. By the end of episode three he's over the top, down the other side and in the next street. His tirade to the High Priest of Atlantis conveys more different emotions in one line than Matthew Waterhouse managed in a career; jubilation, anger, bemusement, contempt… and that's just in the words, 'you demand?'. Then - maladroitly pulling a revolver from within his cloak - he orders'guards, kill those two men!', a line that should by its very nature be impossible to overplay. He manages it anyway, and then for the *coup de grace* exclaims (as a camera wobbles towards him): 'Nozzink in ze world can stop me now!!!' We haven't really got a font grandiose enough for this, but basically every syllable demands an exclamation mark.

"Tomb of the Cybermen" (5.1), episode one.

A generation of us heard how great this story was from older relatives and, later, older fans. When the novelisation came out, the first act climax was sensational. Victoria in a sarcophagus, being electrocuted; Jamie and Hayden being hypnotised; the Doctor warning Klieg not to decode the controls, then doing it himself; and

then, a Cyberman comes to life and shoots! Alas, this isn't what we get on-screen. Not only is the sequence of events different, so that each problem gets resolved before the next one starts, but the dummy Cyberman is obviously a scarecrow. The third diffhanger isn't much better, and for slapstick timing and comedy "whoosh!" gun-sounds is actually worse, but this really was an enormous let-down. In both cases, the episode stops a good ninety seconds after the point where the natural climax occurs.

"The Mysterious Planet" (23.1), episode one.

The Doctor is stoned to death by boy scouts. We know, as this is all done in flashback, that he's perfectly safe. Back in the "present" the prosecution lawyer - the mysterious Valeyard - now demands that the Doctor's trial be one for his life, which we knew from the start of the episode. Any goodwill the"revamped"series may have created in the first few minutes has long since left town.

"Death to the Daleks" (11.3), episode three.

The Doctor heroically saves his local ally, Bellal, from a shower-mat in the middle of a corridor.

"The King's Demons" (20.6), episode one. The broadsword fight is historically accurate, but it's also rather un-telegenic.(BBC2 was showing chess matches around this time, and one of those would have been more pulse-thumpingly exciting. Certainly with better accents.) At the end of the slow-motion swashbuckling,"Sir Gilles" reveals his true identity. At this stage in the Saward / Nathan-Turner partnership anyone *other* than the Master would have been a nice surprise. Now the only shock is that he's hit a new low in pointless, overcomplicated moustache-twirling villainy.

"The Abominable Snowmen" (5.2), episode one. 'Eh-Oh, Ti n ky-Wi n ky.'

'Frontier In Space" (10.3), episode four. The Doctor and Jo are perfectly safe, going to meet the Draconian Emperor at last, with the Master locked up and acting chummy. Then, from his jacket, the villain produces a bleeper-box way too big to have been comfortably secreted in such tight clothing. We cut to a slow,

dramatic pan of the Ogron spaceship as it receives his signal, and… Oh! My! God!… there's an Ogron on board, sitting in a chair with his back to us.

• The all-time classic, however, is episode one of the story which immediately follows this. The Doctor encounters the Daleks on the Ogron planet. He asks the Time Lords to send theTARDIS after their ship. Once there he's found by Thais from Skaro, home of the Daleks, who've dared to travel into space to confront… "them'Ten minutes of circumlocutions later, one of "them" arrives, rendered invisible. It leaves an oval dent in the ground, like a Dalek. But the Thais have 'liquid colour sprays' (aerosols to you), which they use to tag their handles on something which turns out to be… a Dalek! Cue theme music and credits. The story, in case any viewers had missed the previous episode and all the press build-up and competitions in the *Radio Times,* was called "Planet of the Daleks".

the power of kroll 16.5

The Obvious Question: How Old is He?

Evidently, from the Doctor's inability to decide how old he is, there's some discrepancy between our idea of a "year" and his.

One minute David Whitaker, *Doctor Who's* very first script editor, is telling the youth of the nation that the Doctor is 900-odd (although to be fair, it's never said on-screen during the Hartnell era), then a regeneration later he's 450, if what he told Victoria in 5.1,"The Tomb of the Cybermen" wasn't a mild fib to reassure her ten minutes after her father died on an alien planet in the previous story,"The Evil of the Daleks".

By "The Mind of Evil" (8.2), he's apparently been a scientist for'several thousand…'unspecified units of time. His life'covers several thousand years'(7.2, "Doctor Who and the Silurians"), but that could mean anything, not just subjectively-experienced time. Then, in the mid-'70s, he settles on 750-something. Sort of. It's calibrated at 749 in 1975, 759 in 1978, then - in the unshown "birthday" scene of "The Stones of Blood" (16.3) - he's 751. Then there's a ruddy great leap, as he's around 900 in 1985 (22.6, "Revelation of the Daleks") and 953 in 1987 ("Time and the Rani"). Apparently, and fan-lore in the Big Finish era confirms this, Nyssa doesn't age like a human being and the period between "Time-Flight" (19.7) and "Arc of Infinity" (20.1) could be half a century long for all we know.

Now, there's the possibility that the switch from Hartnell toTroughton (4.2,"The Tenth Planet") was less of a full regeneration than a "renewal". Somehow, the Doctor's "deal" with time allowed him to lose a few years and get an upgrade on his body for a downgrade on his clothes. But it *might* be neatest to assume that the Doctor knows exactly how old he is, just not what that means in

Earthly terms. Our year is simply the time it takes for Earth to orbit Sol. Converting that to or from the year of any other world should be simpler than converting Celcius to Fahrenheit, and anyone who spends as much time here as the Doctor does should be pretty good at juggling the currency. So Perhaps there's a problem with Gallifrey's orbit.

Stepping briefly outside what's said on-screen, the mid-'70s saw a snazzy new TARDIS key for the doctor (beloved of merchandisers and American fens) on which there's a design purported to be the constellation of Kasterborous. This claim tomes from Barry Letts, and it was made at about the same time that the name "Gallifrey" began to housed for the previously-anonymous Time Lord homeworld, so we'll take it as authoritative. Usually, when words like "constellation" and "galaxy" are thrown about by *Doctor Who* writers, it's pretty vague and often accompanied by the use of "light-year" as a unit of time. What if we take it at face value, though?

Gallifrey has three suns, judging by the diagram on the key. Two possibilities arise from this. One: there's a primary sun which itself revolves around a larger, less agreeable star, or does a figure-eight around both of the others, in which case there may be a basic year for the planet's orbit and a bigger "stellar year" for the sun's orbit. Two: more alarmingly, Gallifrey weaves around all three stars. "Alarmingly" because the periodicity of the orbit(s) will be chaotic. "Chaotic" in the scientific sense, that is. As you probably know from pop-science magazine articles and documentaries, this means that there's no way to accurately predict where the planet will be in the immediate future. No two orbits are alike.There'll never be any such thing as *a* Gallifreyan year.

Still, when Time Lords talk among themselves they do seem to have an agreed length of time called a "year? If the Doctor and Romana can quarrel over how old the Doctor really is, and old-timers can grumble about Presidents changing 'every couple of centuries' (14.3, "The Deadly Assassin"), then that suggests a stable orbit of sorts.The"one sun revolves around another"theo-ry seems more likely, then. It may be that the planet orbits a G-class star, which itself orbits a bigger, red star (hence the colour of the night sky). Or

maybe they just agree that a certain number of days make one year and have “official” birthdays, like the Queen or Paddington Bear.

So why can’t the Doctor convert from this to Earth time? The Gallifreyans might not calculate time so much as sense it. (If they evolved on a planet with such a wonky orbit then they’d have to, just because their remote evolutionary ancestors would otherwise have died through eating fruit out of season or not coming on heat at the same time.) That would explain the ancient Gallifreyans’overwhelming desire to conquer and organise time, just to get their lives in order. If it’s instinctive, then perhaps they might not be able to articulate it when thinking in terrestrial, Newtonian terms.

the armageddon factor 16.6

How Hard is it to Be the Wrong Size?

As geneticist J. B. S. Haldane observed in his famous 1930s essay On Being The Right Size, there are problems with the sort of thing routinely taking place in stories like “The Invisible Enemy”

(15.2).

Let’s start with “getting bigger” before we move on to the fiddlyness of “getting smaller” Something x centimetres long changing to 3x centimetres will be disproportionately gaining mass and surface area, so if y is the original mass and z is how much skin there is, you get y^3 and z^2. Which means that a giant rat, going from six inches to ten feet (as the Doctor estimates it in 14.6, The Talons of Weng-Chiang”), is going from x to 20x; he skin area will be 400 times bigger, and the weight 8,000 times greater. As the cross-section of his bones is only going to be twenty times bigger, that’s a lot more weight to take per joint, and the poor bugger’s going to break every bone in his body trying to move. Even standing still is risky. He’ll also need to eat a lot more, as all that extra surface area is going to radiate heat (although a larger volume of brown fat may offset this, especially if he’s not moving). The lungs will also be much larger, though the heart will be under an enormous strain keeping up.

On the plus side, as noted in “The Power of Kroll” (16.5), something big has a slower metabolism and can live for ages.This, of course, presents problems for anything made small. But for now well consider the problem of a three-metre robot turning into a thirty-metre one (12.1,“Robot”) and not crashing to the ground under the strain on its ankles. As with the rat, the K1 robot has the capacity to adjust its molecular structure and grow, albeit not this big nor this fast. Neither being, however, has any capacity for modification of

the design"; rats are the optimum size for their lifestyle. Compare this with beings whose DNA has been altered in embryo, such as giant maggots (10.5, "The Green Death"), and the problem is obvious. If the rat were an adult before the "change" then it'd be a hairy blob, not rat-shaped nor able to run. If it were an embryo, then how did the foetus get to full-term? Maggots, developed from eggs exposed to a teratogenic green slime, don't have this problem (though the adult insect shouldn't be able to fly in our air).

Now we tiptoe into the realms of madness with writers Bob Baker and Dave Martin. By introducing dimensional stabiliser mayhem in "The Invisible Enemy" and "The Armageddon Factor'; they seem to be Playing along with ideas floated in the very first script meetings for the story which became "Planet of Giants" (2.1). However, it's not as simple as it might seem.

When the TARDIS crew were minimised before, it was because the Ship had landed badly and was itself tiny. In "Carnival of Monsters" (10.2) there's a compression field; once removed from this, things resume their rightful size. Thus any air inside the Miniscope is proportionately small and therefore breathable. Shrunken people can eat food and drink scotch and metabolise it all. In "Planet of Giants"the disproportionate size of Barbara to the pesticide DN7 makes its effect on her worse, although slower than with insects as her skin pores are smaller than those of an ant. With "The Invisible Enemy", what's particularly annoying is that the writers think of some of the problems. Mini-Leela is told that she isn't wet because she's too small to break surface tension, but nobody asks things like "how does she breathe giant air molecules?'; In all of these cases, however, a bigger problem is that a shrunken object retains its mass but has to squeeze it all into a smaller space. Azal in "The Daemons"(8.5) can miniaturise himself, et at least has the good grace to shed some of his mass as energy and cause a minor heatwave. Normal people wouldn't survive this even if they could do it; the mass-loss would have to come from non-essential body-parts, and no shrinking-device we've seen used on humans is that selective. If we try to cram mass into a smaller space "naturally" then we either make things denser (and anything containing as much water as a human being won't get much more compact… uniquely, water gets bigger as it cools, so the molecules are at their

most dense at 4˚c) or we melt it down. A lot of mass in a little space causes all sorts of tidal problems, and in extremist black hole. Surviving even a slight reduction is unlikely, and the Master notoriously uses miniaturisation as his trademark murder technique (8.1,“Terror of the Autons et seq.).

The only other known way of doing it is for matter to degenerate, stripping the electron shells and making superdense stuff like the core of a neutron star (see 18.5, “Warriors’Gate”). This is the fabled one-teaspoon-weighs-a-ton material, neu-tronium, and it’s not healthy to be converted into if you can help it. The people made tiny in *Doctor Who are* usually compacted inside some kind of “field; and thus not really engaging with the outside world, which is evidently why they’re still people and not dots of neutronium. Aside from the breathing issue - which we can reluctantly sidestep as “dramatic license” - they should really be thought of as existing in a different dimension.

Yet the Doctor and Leela can interact with the world around them when they’re shrunk to microscopic size in “The Invisible Enemy”, so what happens to the mass? Potentially it’s “banked” in a ‘holding account”within the stabiliser field gener-ator.This might explain how a noetic virus gains so much bulk and changes shape at the end of episode three; it’s got the mass that the Doctor and Leela put into the “account” earlier on. Mind you, if it’s that easy to make things mass-less than travelling at the speed of light shouldn’t be much of a problem, so no wonder space travel’s so popular in the *Doctor Who* universe. What this means is that things reduced must be restored at some point, and by the same process which shrank them. From this we can conclude that the shrinking in “Planet of Fire” (21.5) is entirely stupid, but we might have guessed that.

Bizarrely, then, “The Armageddon Factor” presents us with the most credible size-change. It’s temporary, and it’s undone with the same device by which it was achieved; it’s a reduction of 10:1, and it’s conducted on two Time Lords who can presumably breathe under difficult circumstances. It’s still twaddle, but give them marks for effort.

destiny of the daleks 17.1

War of the Daleks: Should Anyone Believe a Word of It?

Or,"What's the Best Way of Saving Skaro"?

In 1988's "Remembrance of the Daleks" (25.1), Skaro - homeworld of the Daleks, and their seat of power since their debut in 1963 - is destroyed.This annoyed an awful lot of *Doctor Who* purists, not because it seemed like sacrilege but because it messed up everything they thought they knew about Dalek history. Until 1988 it had been almost universally believed that *chronologically* speaking, the last Dalek story was "Evil of the Daleks" (4.9), which is partly set on Skaro and features what the Doctor believes to be the 'final end' of the Dalek line."Remembrance"just gets in the way.

Since then, many pretend-historians have tried to work out how all of this fits together. Parkin's *A History of the Universe* claims that "Evil of the Daleks" is actually set much earlier than "Remembrance"and that the'final end'isn't really final at all. Rational, but dull. *The Discontinuity Guide* claims that the Doctor changes history in "Genesis of the Daleks" (12.4), so that "Evil" never happened and the way is left clear for "Remembrance" to destroy Skaro whenever it likes. But this is shaky, and see **How Badly Does Dalek History Suffer?** under 12.4 to see why. Meanwhile fan-lore has frequently claimed that the Daleks simply create a New Skaro after "Remembrance" and that "Evil" is set on another planet with the same name, which is cute but not what the TV stories tell us.

Our *real* problem is this. Though this present volume only acknowledges the TV stories to be 100% canonical, it *does* take material from the *Doctor Who* novels as supporting evidence. After all, the novels - unlike the book versions of just about any other television programme - were specifically designed as a continuation

of the series rather than a wholly shameless cash-in, and were almost exclusively written by people who knew something about the workings of the continuity. Ostensibly. (See **Is Continuity a Pointless Waste of Time?** under 22.1, “Attack of the Cybermen”, or more of this sort of thing.) If there’s a question about the way this universe fits together, then at the very least the books should be used as a “secondary source” And the books *have* presented an answer to the Skaro problem, specifically in John Peel’s 1997 tribute to obsession, *War of the Daleks.*

Unfortunately… many fans greatly object to *War of the Daleks.* Its solution to the Skaro problem is a workable one, but it’s also utterly bizarre, and re-writes huge chunks of the TV series with very little reason. Perhaps its worst offence, though, is that it does this in such a po-faced way. If the novel had been even a *little* more humorous about things, then its weirdly convoluted version of Dalek history might have been massively entertaining. Instead its over-earnesty makes it seem, on occasion, just berserk.

Nonetheless. The *War of the Daleks* version of Dalek history reveals the following:

When the Daleks invaded Earth in 2157 (2.2, “The Dalek Invasion of Earth”), they raided the planet’s archives and discovered records of the Dalek attack in 1963 (“Remembrance”). They realised that one day in the future, renegade timetravelling Daleks controlled by Davros - whom the Daleks of 2157 believed to be dead - would travel back to 1963, but be tricked by the Doctor into destroying future-Skaro.The Daleks of 2157 didn’t like this much, but knew that history couldn’t be changed (something which would seem to contradict their actions in 2.8, “The Chase” although never mind that now).

Later, in the 3900s, the Daleks set about a devious scheme to try to avoid this fate.They returned to the old bunker on Skaro, and found that Davros was indeed alive there, but in suspended animation. *Without waking him up,* they transported him to another planet (named Antalin) that looked a lot like Skaro, and left him in an exact copy of the bunker. When he was eventually revived (“Destiny of the Daleks”), Davros thus reached the conclusion that *this* planet was the real Skaro. So when the Doctor tricked him into

destroying it (“Remembrance”), the Davros-hating Daleks on the *real* Skaro were perfectly safe.

In a way, you have to admire Peel for building an entire novel around a single point of piddling continuity. But he doesn’t stop there. *War of the Daleks* goes on to explain that since the Daleks needed an excuse to bring Davros out of suspended animation, they invented the idea of the Dalek / Movellan war, all as part of their plan to fulfil their destiny without being wiped out. Yes; it turns out that the whole war, seen in both “Destiny” and “Resurrection of the Daleks” (21.4), is a fraud. A fake. The Movellans, far from being a galactic super-power to rival the Daleks, are actually just second-rate Dalek servo-robots acting on orders from Dalek high command.

At the very least, this would explain why the Movellans are such an embarrassment. They’re crass, unconvincing and easy to disable because that’s what Daleks think *humans* are like.

Needless to say, this version of events hasn’t gone down well in many parts of fandom. But nonetheless, this current volume feels obliged to take notice of it. Having already made the decision to accept the spin-offery of *Doctor Who* as a kind of hearsay testimony, it wouldn’t be right to change the rules just to avoid one (admittedly quite large) black hole in the middle of the continuity. Besides which, for all its manic over-enthusiasm *War of the Daleks* does at least do a fair job of pulling together Dalek history, supplying a definitive dating-system for the final Davros stories (“Destiny” “Resurrection” “Revelation”

“Remembrance”) and establishing - believably -that the big Dalek push for galactic dominance (3.4, “The Daleks’ Masterplan”) only takes place offer they’ve dealt with their annoying creator.

For the record, then. In this volume, continuity notes on “Destiny” and “Resurrection” will focus entirely on what we’re told in those stories, nof on the *War of the Daleks* version of things. Whereas for Dalek chronology, the really rather convenient dating used in *War* will be considered “real” Anyone who disagrees, and who wants to know how the Daleks can still be talking about Skaro in 4000 AD when “Remembrance” would seem to destroy it in the 3900s, might just want to fall back on the old New Skaro argument. Or make up

an equally spurious answer off the top of their head.

When Did the Doctor Meet Leonardo?

It was always a source of great satisfaction that the writers of *Doctor Who* never did anything as obvious as have Our Hero meet Leonardo da Vinci. Then came the 1996 TV Movie, where the "new" Doctor sees a Leonardo print on the wall and insists on name-dropping. Never mind snogging Grace or all that faffing around with the Eye of Harmony, this was the *real* insult. Not only the safe, cosy option of a dumb name-check, but the fact that he gets the name wrong. Calling the artist "da Vinci" is like calling Rembrandt "Van Reyn" or Hippocrates "Cos" (as deriders of the ghastly *The Da Vinci Code* have pointed out more recently). Moreover, the picture he recognises - "Head of a Young Woman" from the Venice Accademia - is reproduced back-to-front.

But let's not fret unduly. Assuming he *was* there when that particular sketch was done (circa 1506-OS, in Milan), what else could the Doctor have seen, done or influenced? Probably the most significant item would be Leonardo's big project at the time, a painting of Leda - who had sex with Zeus while he was in the form of a swan - which has subsequently vanished. The sketched head may well have been part of his preparations; he certainly made enough rough notes and plans for other artists to have had a stab at reconstituting the finished work in its absence. In mythology, Leda is often equated with the goddess Nemesis, and make of that what you will. We know the Doctor has (or had) a miniature gallery on the TARDI5 that's used to disguise a secondary generator (15.6, "The Invasion of Time"), in which such works as "The Arnolfini Wedding" and "The Fighting Temererе"are displayed. Are these originals, salvaged from the National Gallery or Tate UK after some future catastrophe? Perhaps Leonardo's Leda had to be "confiscated" by the Doctor in the 1920s, when the blue box in the

background would have become recognisable to Londoners.

Then there's Leonardo's painting "Christ Among the Doctors"also circa 1508.Yes, his sponsors were the Medici family, and Medici translates as "doctors" But as it vanished a few centuries back and hasn't been exhibited since its supposed recent discovery, who can say what these learned men look like? (Actually, many artists seem to have tackled this subject, mainly as an excuse to paint lots of old men with interesting nobbly faces but with a cute boy as the focus. It always sells.)

When signing off the mirror-written note to Leonardo in "City of Death", the Doctor says "see you earlier" A typical Tom Baker throwaway line, which could just be goofing or could be a big hint (like the way he asks'what's those?'on hearing the name of Xoanon in 14.4,"The Face of Evil"). It's not clear whether the Doctor has met Leonardo or not. He puts on an air of familiarity when he's calling out the man's name, but it could just be the usual Doctor-bluster. "See you earlier" might hint that the Doctor hasn't met Leonardo yet, but is planning on going further back in time at some point and meeting the artist before 1505. Or it might hint that the Doctor has already met Leonardo, but after 1505. It's certainly feasible that Leonardo might obey a stranger's instructions to paint over marked canvases, if that stranger tickled his fancy by writing the note in mirror-writing, as Leonardo did in his own diaries.

In "The Masque of Mandragora" (14.1) the Doctor visits the early 1490s and is eager to meet Leonardo there, but doesn't specify whether he's met the man before / after / earlier / later. The script seems to suggest that there's never been any contact between the two, yet the Doctor never says anything to contradict the idea that they might have run into each other in another time. At one point the Doctor asks whether Leonardo is among a group of entertainers, though all the entertainers are masked, so there's no way of knowing whether he'd recognise the great man on sight or not. And the almost-canon-ical radio play "The Ghosts of N-Space" has the Third Doctor referring to Leonardo as an old friend. It's at least possible, then, that they met late on in Leonardo's life (but quite early on in the Doctor's).This is perhaps the simplest explanation, as it means you don't have to contrive a meeting in the brief gap

between “The Masque of Mandragora” and “City of Death” So the Eighth Doctor’s apparent claim, of being around in 1506-08, makes sense.

But let’s bear in mind, the Doctor *does* have a habit of revisiting old friends, despite the TARDIS’ unpredictability. “City of Death” implies at least two meetings with Shakespeare, so there may have been other get-togethers with Leonardo. How does 1485 sound? Most of the works in the studio in”City of Death”date from that period anyway, but there’s also a fascinating gap in Leonardo’s biography there. Well, less a gap than a discrepancy. He claimed to have been sent on a long journey of discovery by the Devatdar of Cairo, and not to have been in Milan but in the Taurus Mountains near the Euphrates, then swallowed by some giant sea-beast dating back to the time of the Persian king Artaxerxes. True, the Sultan of Egypt *did* ask him to build a bridge in Constantinople, and plans for this exist. But most art historians dismiss the diaries and letters as his version of “the dog ate my homework” and claim that he was in Milan all along, doing the many commissioned works for which invoices exist and attending human dissections (for which the Inquisition would have wanted a word, had they known). But look at either of the two versions of “The Virgin of the Rocks” and decide for yourself if those heavily symbolic caves are in Italy. From the Doctor’s point of view, this period - when Leonardo was still influenced by his patron’s pet philosophers Ficino and Pico della Mirandola (the Doctor wouldn’t pass up a chance to talk to these two), and just beginning to discover the extent of his powers - would be irresistible.

So, we have a likely timeline. The Doctor first meets Leonardo in 1507-08, when the maestro is arranging the festivities for Louis Xll’s entry into Milan and making mechanical wonders. This might explain why, in the novel *Happy Endings,* a much later incarnation of the Doctor hires him to design an enormous cybernetic wedding cake. Then there’s a near miss c. 1492, when the Doctor leaves the Dukedom of San Martino before Leonardo arrives at the party (if, indeed, Leonardo ever turns up). And there’s another near miss in 1505, when the Borgia family unexpectedly commissions six copies of one of Leonardo’s neoplatonic experimental paintings. (The Borgias weren’t flavour of the month in Medici Milan, what with

the 1498 show-trial of Girolamo Savonarola, the brief ruler of Florence who was simultaneously hanged and burned. If you've got time and a strong stomach, check out the career of Roderigo Borgia, AKA Pope Alexander VI. It's thoroughly grotesque.)

After that the Doctor and Leonardo may well meet up any number of times, perhaps in Asia Minor, 1485. The adventure with the giant sea-beast sounds like the Doctor's sort of thing, at least.

nightmare of eden 17.4

How Do You Transmit Matter?

Three procedures for this nifty plot-device have been suggested.

The most basic is that it's like television; you break down the object, whip it along a radiobeam and reassemble it at the destination. This was the method proposed in "The Dalek Masterplan" (3.4), and later in *Star Trek* and *Charlie and the Chocolate Factory*. But there's a basic problem here, namely what happens when you convert mass into energy. To put it bluntly, Bang = MC2. All that mass / energy has to be confined and made to behave itself as you do a subatomic jig-saw-puzzle.

One solution is a system in which you don't actually transmit matter, but instead break the traveller down into pieces, send the *information* about those pieces along the beam and use another machine at the other end to recreate the traveller out of raw matter that's already there. However, this raises all sorts of nasty ethical questions, since you're basically killing the person who uses the device and making an exact copy somewhere else.The replicators in modern-day *StarTrek* seem to work on this principle, yet the programme likes to gloss over the question of why the transporters on the *Enterprise* can't make endless copies of people by using the same techniques but not destroying the originals. Nonetheless, this is apparently what's happening in "The Mutants" (9.4) and "Revenge of the Cybermen" (12.5), which makes you wonder just how many times the Doctor, Jo Grant, Sarah Jane Smith and Harry Sullivan have "died" on-screen. This system is known as"transmat"though after 1978 this term is used to mean any kind of apparent teleportation, and turns into a verb.

But whether you're using transmat or the later (mortality-free) version that's being tested in 4000 AD, there's a scientific hitch here. This technique requires you to know everything about every single particle before you transmit it, and… you can't. As it turns

out, if you try to find out *one* thing about a particle then it changes the nature of that particle, so you can't find out anything else. You can know its momentum or its position, but not both. (This is called Heisenberg's Uncertainty Principle, and yes, of course it sounds mad. As we'll see in other entries, the physics of the last century is full of counter-intuitive fun and games like this.)

Then there's the difficulty of getting a clear, Uninterrupted transmission. Well, think of the I transmitter device as a fax machine. You could | send the data down the wires, but in the case of a human traveller you'd need a stack of high-density CD ROMs about three miles high in order to get every subatomic particle "right" It's worth noting that in *Doctor Who* this process usually involves a bracelet of an odd material, or - if Terry Nation's not involved - some other object for the passenger to hold.

The third and final technique seems more exotic, but involves fewer glitches. Instead of disintegrating and reintegrating the subject, you "simply" move the passenger from A to B by eliminating all the points in-between. The most likely means of doing this is a localised wormhole or Einstein-Rosen tunnel.The three "orthodox" spatial dimensions, plus time, are perceptible. If some fifth dimension were to be discovered, then to our senses anyone travelling through it would disappear and reappear elsewhere. An ant crawling on a sheet of paper might not realise that you've picked up the sheet and curled the corners together (making the bottom-left and top-right corners overlap), but if you gently uncurl the paper then it could be a foot away from where it was two seconds ago, even though it's only crawled an inch.This is straightforward travel, in an odd sort of way.

Despite the terminology, this appears to be how Zanak moves (16.2, "The Pirate Planet"), with the Doctor wistfully observing that there's no sensation. And though it's hard to explain how humans might have cracked it as early as the mid-to-late twenty-first century - and why they're not doing more with their localised wormholes - this could be how the Travel-Mat system works in "The Seeds of Death"(6.5).Travel-Mat is accepted everywhere on Earth, and nobody's worried about being disintegrated, suggesting that it doesn't break people down into bits like transmat does. Certainly,

there's a clear implication that this is how the *Empress* and the *Hecate* travel in "Nightmare of Eden" and "Eden" takes place only decades after "The Seeds of Death". Why does everyone stop using this technique, though, and turn to the more morally dubious transmat system? Well, maybe there are unforeseen side-effects to messing around with other dimensions (q.v. the New Adventure *Transit,* which also happens to be set in the post-Travel-Mat era).

We've already mentioned the ethical problems, especially with regard to transmat. If the atoms of a person are zipped along as data, then is the person on the other end the same individual? Does the soul - should he or she have one - travel as fast? This problem is amplified by the most likely transmat scenario, one involving quantum entanglement.

The simplest analogy would be hooking a rubber band around your left thumb; then your right thumb; hen pulling it apart as far as it will go; hen removing the left thumb. But without the"ow".At a subatomic level, particles come in matched pairs (electron and positron, neutrino and anti-neutrino), then disappear into a general flux of probability. The particles are often very far apart, but to affect one is to simultaneously affect the other.

Yes, that's right, simultaneously; a subatomic particle in London "knows" what's happening to a particle in New York, the information not "travelling" anywhere and so not impeded by the need to stay within the speed of light. So the research shows that if the particle and its other half are somehow mathematically "stirred in" to an object, then the one that's "transmitted" will be connected to the one that's "receiving" If you combine a particle of what you're sending with a particle whose twin is at the receiving end, then that twin will acquire a particle exactly like the one you've "stirred in"at the source. You don't really *send* anything, except some sort of influence over subatomic particles (even if they're a very long way away) which then combine to make an exact match for your original subject.

If you've done it right, then all the particles should spontaneously decide to be at the other end of the process rather than at the start, making it look as if you've moved the subject from one side of the universe to the other. Actually science says that all your particles

might spontaneously decide to be at the other side of the universe anyway, but the odds of it happening are usually quite absurd.

shada 17.6

What Else Didn't Get Made?

"Shada" is unique amongst *Doctor Who* stories in that it's the only story which was partly-filmed and then abandoned, but of course, there's no end of stories which faltered long before they reached the production stage. Many of these are described in the various **Lore** sections, usually in as much detail as is warranted. Here, though, is our selection of ten stories seriously considered but - in some cases mercifully - never made.

• *"Doctor Who* **and the Spare-Part People"**

(also listed as "The Brain-Drain" and "The Cold War") by Reed R. de Rouen and Jon Pertwee (!). Pertwee's father and uncle were both experienced scriptwriters, so you can see how he'd think himself qualified. Apart from his performance as Pa Clanton in "The Gunfighters" (3.8), de Rouen had written one episode of *The Avengers* and a *Play of the Week* called "The Trial of Lee Harvey Oswald" Now, there's no reason to dismiss this projected seven-parter out of hand without seeing what it actually entailed. Brilliant scientists and sportsmen are being abducted by a megalomaniac who lives in a tropical paradise at the South Pole, who's attempting to create a super-race and who stages gladiatorial combats between footballers and crocodiles.The Doctor goes undercover as a Nobel laureate, and he and the Brigadier are taken in a submarine to the Lost Kingdom, where the Doctor's immortality intrigues the Emperor. The Emperor puts the Doctor in a labyrinth to fight his pet monster, but his beautiful daughter helps the Doctor with a ball of string, and they all get in the sub and return to UNIT HQ where the girl replaces Liz Shaw. All right, *now* you can dismiss it out of hand.Terrance Dicks did.

• **"Beyond the Sun"** by Malcolm Hulke. Hulke submitted at least three ideas in the series' first year, including the now-legendary *"Doctor Who* and the Clock; more on this in Volume I. "The Hidden

Planet", AKA "Beyond the Sun" (Hartnell titles are always tricky, even when the story was actually made) was a tale of a world in the same orbit as Earth but exactly opposite; a world where four-leaf clovers are common, women are in charge and birds fly backwards. This was to have been a six-parter, and it was given to Hulke as a consolation prize after his scenario "406 AD" had been rejected. Significantly, the production team's "do a total rewrite or we abandon it"decision was taken at the precise moment that the public got to see the Daleks and the whole tone of the pro gramme changed. It would appear that this story was replaced in the line-up by "The Keys of Marinus"(1.5), n the belief that Terry Nation knew what he was doing…

• **"The Enemy Within" by Christopher Priest.**

We could have cited his more famous "lost" story "Sealed Orders" in which the Time Lords order the Doctor to kill Romana while the TARDIS lands inside itself and runs at two different speeds. But this one's worth mentioning because it's apparently referenced in a story that *did* get made, written before "The Enemy Within" fell through. In "Castrovalva"(19.1) the Doctor hints at something powerful and terrifying at the centre of the TARDIS, but as he's just regenerated he can't quite remember what it is. What it *would* have been was a vegetable parasite / symbiont of the Ship, feeding on some kind of time-energy. Priest's early novel *Inverted World,* in which time and space are exchanged, shows how well he could have handled this material (as does his Wells pastiche *The Space Machine, wh\ch* also demonstrates his grasp of the idiom of *Doctor Who* as Victorian-style psychedelia).

A genuine stylist and respected author, with a background in SF but a few award-nominated "mundane" books, wanted to write for *Doctor Who;* it was the dream of the last four script editors realised. But although Douglas Adams commissioned "Sealed Orders" incoming script editor Christopher H. Bidmead wanted too many changes, e.g. the removal of Romana. So Priest got paid and was offered another slot. "The Enemy Within"was written to a Bidmead brief… and then Eric Saward arrived as script editor and asked for revisions. Plus, Priest was of the opinion that the new producer thought of writers - if at all - as rather less important than costume

designers.

Things reached a head when John Nathan-Turner launched into a tirade at Priest over the ‘phone, refusing to pay the writer’s fee.The call has since become the stuff of legend, Priest himself describing it as ‘an extraordinary display of petulance, with foul language and insults freely mixed’. The Writer’s Guild found in Priest’s favour, and Priest decided that life really was too short for dealing with prima-donna-ishTV types.

It didn’t quite end there, though. When a fan wrote in to ask why no “real” SF authors were used on the series, Eric Saward replied (and we here reproduce his response verbatim, spelling and all): “The names of writers you quoat are novalists. Infact one of them has attempted to write a *Doctor Who* script with disasterous results. That is why we don’t use novalists.” Priest was shown this and contacted the Head of Series and Serials at the BBC, gaining a grovelling and abject letter of apology from Saward and Nathan-Turner, plus a written statement that Priest’s version of events was the correct one. See the interview in *SF Eye* issue 15 (autumn 1997) for more.

• **“The Song of the Space Whale”** by Pat Mills. The same fate befell this script. The co-creator of *Judge Dredd* submitted a story about a whole culture stuck inside a vast ship, the Ghaleen, which may also have been alive. But Eric Saward, from Mills’ account, took exception to the ship’s working-class captain speaking anything other than the cod-Shakespearean dialogue which Saward apparently wanted everyone in space to speak. However, one of the minor characters - a roguish cabin-boy called Turlough - was recycled as an aristocratic space-orphan in a minor public-school, whilst the industrial conception of the spaceship’s monastic life became a big thread in “Terminus” (20.4). What’s interesting here is that only a few years later, the idea of a script by the writers of the comic 2000 AD was the ideal to which script editor Andrew Cartmel aspired.

• **“The Face of God”** by Donald Tosh, possibly. This was the idea that ’60s producer John Wiles used as a bench-mark of what he wanted *Doctor Who* to be like. There’s no indication that he ever intended to make it, but as a guide to his thinking he mentioned it

in every interview he gave in the 1980s. As many people have taken this as a definite plan to make a deliberately "controversial" story, and listed it as something that nearly-but-not-quite got made, we've included it here to remove confusion. Mind you, Wiles' very first story as producer was set in known legend (3.3, "The Myth Makers") and he dared to tease the audience with the Doctor's death (3.5,"The Massacre"), so it's not completely out of the question.

• **"Prison in Space"** by Dick Sharpies. If you've Wondered just why stories doubled in length at the tail-end of the sixties, then… it was that or let something like this onto our screens. Several abortive stories for Season Six were sufficiently advanced for props and half-finished scripts to be available. Some were rejigged in 1970 as UNIT adventures, in colour and three episodes too long; some were never going to work without somebody inventing CGI. But junking this idea was a definite decision on grounds of taste.

Sitcom veteran Dick Sharpies concocted a story about a matriarchy where men were forced to wear dresses and be submissive servants / sex-objects. Following lots of jokes about Jamie's kilt, the Doctor and company stage a coup, and much spanking ensues. Along the way the story was, somehow, supposed to introduce Jamie's replacement "Nik" Everything else in the story could have been done very cheaply, with one spaceship set and a few cells, and perhaps a costume or two borrowed from the BBC's *Out of the Unknown.*

Indeed, looking carefully at what was intended, it seems that Robert Holmes was later instructed to write a story around what had already been requested from the designers (hence the odd pacing of 6.5, "The Space Pirates"). The same gender-war idea cropped up on our screens ten years later as a recurring segment in popular comedy show *The Two Ronnies,* where it was played for laughs as a pretext for middle-aged men in drag and attractive Nazi feminists in leather uniforms and big boots.

• **"Alixion"** by Robin Mukherjee. In Volume VI we'll look in detail at the various plans that were made for Season Twenty-Seven before the plug was finally pulled on the programme, but this is worth mentioning here as the only story by a writer who went on to

do lots of TV drama *without* ever writing a New Adventure; he only one with a definite title; and the only one not at least partly recycled by Virgin, Big Finish, BBV or BBC Books.

Mukherjee had submitted many story proposals to script editor Andrew Cartmel, and was bound to have hit paydirt sooner or later. Alixion was the name of an asteroid, and the name of the substance made therein, a glorified Buckfast wine or Chartreuse.The asteroid was a warren of corridors and cloisters but, as it turned out, not your usual *Doctor Who* ones. In fact it was more like a beehive, producing the eponymous "elixir" and populated by giant beetles, the twist being that the stuff of life was made from digested human corpses. The human inhabitants were basically monks, and thus didn't put up much resistance (their vow of silence didn't help). The villain, the Abbot, was a manipulative smooth-talker - and also, possibly, a bank-manager - attempting to drive the Doctor insane whilst trying on increasingly loud suits. This was initially commissioned for Season Twenty-Six, but apparently not used as Mukherjee was a "new writer".Yet so were Marc Platt (26.2, "Ghost Light") and Rona Munro (26.4, "Survival"), so either Mukherjee didn't fit the plan or something about the story just wasn't working.

• **"The Rosemariners"** by Donald Tosh. Although irked at his treatment by the BBC during the Hartnell run, former script editor Tosh was drawn back to the programme by the prospect of writing for Patrick Troughton. His idea for a story featured space-based botanical research station ESS 454, and wasn't entirely unlike "Fury from the Deep" (5.6), with plants infecting and possessing people. Much of the politicking and jockeying for control was akin to "The Wheel in Space" (5.7), while the plants ended up creating doppel-gangers of the men, again not unlike various Troughton yarns (especially 4.8, "The Faceless Ones"). He kept revising this story for various lineups, but once the UNIT era began he abandoned it.

• **"Erinella"** by Pennant Roberts. Chris Bidmead claims, in just about every interview, that there were no scripts available for use when he took over as script editor in Season Eighteen.This just isn't true; what he means is that there were no scripts fitting his own rigid doctrine of what *Doctor Who* ought to be. As many as five possible stories were there to be made, in reasonably broadcastable

form. One of these, the one he considered and reconsidered and repeatedly requested rewrites for, was director Pennant Roberts' reworking of Celtic mythology. With a real dragon, too, and there's documentary evidence that it had been commissioned in January 1979 under the working title "Dragons of Fear" Roberts, always happy to tell his side of the story to anyone who'll listen, claims that the suffix "ella" suggests "perhaps"; implying that this tale was set in an Ireland which never quite existed. As the prince and his brother-in-law battle dragons and fight for the hand of a princess, the Doctor wrecks everything by arriving too early in a cyclic story, and is accused of being a poisoner. Bidmead also turned his nose up at script proposals by writers like Allan Prior, John Lloyd and Philip Hinchcliffe. (Hinchcliffe's "Valley of the Lost" appears to have been the Rider-Haggard pastiche with which he would have opened Season Fifteen if he hadn't been kicked out as producer, set in South America and ending with the Doctor trapped inside a sun, a fact that Hinchcliffe said could either be resolved or not depending on how matters stood with Baker's agent.)

• **"Project Zeta-Sigma"** by John Flanagan and Andrew McCulloch. Bidmead was so pleased with "Meglos" (!) that its writers were immediately recommissioned, and were given the task of writing out the Fourth Doctor at the end of Season Eighteen. The story was a thinly-veiled nuclear arms-race parable about two equal and opposite sides, the subtly-named "Hawks" and "Doves"each with plans to stop the other lot starting a war. It involved things called autogems (or "autochems" in some accounts, apparently intended to be talking weapons), a missile capable of flying through the planet's sun and - inevitably - the Master, and it ended with a crap joke about the new Doctor's "disarming" smile.

Once it became apparent that this wasn't quite epic enough (or ready enough) to round off Season Eighteen and kill off Tom Baker, it was rescheduled as the first story of Season Nineteen. By this stage it was apparent that there was a gaping hole in the plot, or more accurately a gaping hole where the plot should have been. The proposal limped on as far as casting decisions, although three or four titles were used; "Project Zeta Plus","Project 4G"and so on. Bidmead's faith in the writers meant that the stories around it were filmed to end where "Zeta-Sigma" began, and to begin where it

ended.Thus when it all went horribly wrong, Bidmead himself had to hurriedly create a sequel to “Logopolis” (18.7) that didn’t contradict “Four to Doomsday”(19.2)… which, in the delay, had been moved forward in the shooting schedule and was even then being filmed.